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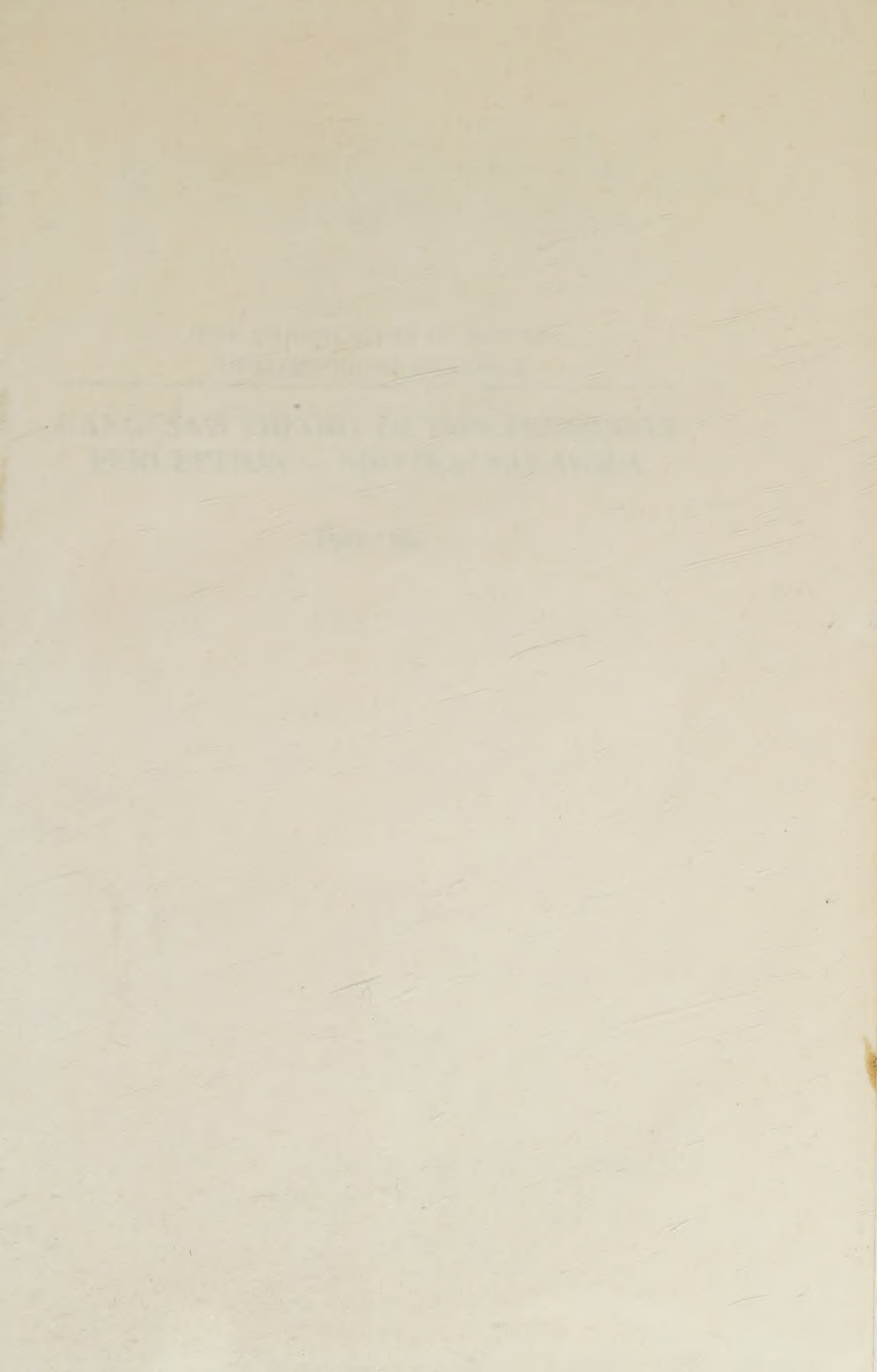
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Gaṅgeśa's
Theory of
Indeterminate
Perception
Nirvikalpakavāda

PART ONE

SIBAJIBAN BHATTACHARYYA

In this Part One an attempt has been made to explain Navya-Nyāya concepts and theories which will help in understanding Gaṅgeśa's text translated in Part Two.





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**GAṄGEŚA'S THEORY OF INDETERMINATE
PERCEPTION — NIRVIKALPAKAVĀDA**

Part One

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**GAṄGEŚA'S THEORY OF
INDETERMINATE PERCEPTION
NIRVIKALPAKAVĀDA**

Part One

SIBAJIBAN BHATTACHARYYA



**INDIAN COUNCIL OF PHILOSOPHICAL
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PREFACE

In this Part One of *Gaṅgeśa's Theory of Indeterminate Perception, Nirvikalpakavāda*, I have tried to analyse and explain the concepts used in Gaṅgeśa's text, translated in Part Two. I have also explained some basic concepts of Navya-Nyāya, but I have not attempted to give a comprehensive account of Navya-Nyāya concepts and techniques. In philosophically discussing the Navya-Nyāya theories, I have often included Western theories; but in some special cases, where I am not aware of Western positions, I have explained rival Indian theories. In these chapters, this book presupposes some acquaintance with Indian philosophical theories.

In this work I have incorporated with minor modifications papers already published. In Chapter one, I have included portions of my paper, 'Some features of the technical language of Navya-Nyāya' published in *Philosophy East & West* (April, 1990), and of 'Some principles and concepts of Navya-Nyāya logic and ontology' from my book, *Doubt, Belief and knowledge* (Chapter 16), (Indian Council of Philosophical Research, New Delhi 1987). In Chapter Three of this book, I have incorporated portions of Chapters 17 and 18, of that book. In Chapter four, I have incorporated portions of my paper in *Philosophy East & West*.

Even though discussions of some of topics are in the context of Indian theories, I hope, this book will be useful for general readers of philosophy.

I thank the Indian Council of Philosophical Research, New Delhi, for full financial support for preparation of the manuscript.

INTRODUCTION

This book contains 5 chapters, each subdivided into many sections. In Chapter one, a general discussion of different aspects of the Navya-Nyāya theories of cognition is given. It may be of some interest here to compare and contrast the Navya-Nyāya theory of cognition with the usual Western concept of knowledge. As cognition in Nyāya may be either true or false, it will be proper to compare the Nyāya theory of true cognition (*pramā*), with knowledge. *Pramā* is true episodic belief while knowledge is usually conceived as justified true belief. The point is that there is no conception of justification in the Nyāya concept of *pramā*. This may be explained by what is technically called '*kūṭa-līṅgak-ānumiti*' (a true conclusion following from defective premises). Usually two types of examples of this type of inference are given. (i) "The hill has dust, dust is pervaded by fire; the hill has dust pervaded by fire. Hence the hill has fire." (ii) "The hill has kitchenhood, kitchenhood is pervaded by fire: the hill has kitchenhood pervaded by fire. Hence the hill has fire." In both these cases, the conclusion may be true by fluke. Yet the premises which are the evidence of the conclusion are false. Gettier's problems arise out of propositions which happen to be true by accident. It is generally agreed that in such cases there is no knowledge of the proposition. Yet, according to Nyāya the cognition of the conclusion is *pramā*, the defect of the premises cannot affect the truth of the conclusion, and its cognition is *pramā*. Thus *pramā*, or true cognition, cannot be identified with knowledge.

Then there is a difficulty in the Nyāya definition of *karaṇa* (instrumental cause). The usual definition of *karaṇa* is that it is a cause which has operation (*vyāpāra*); *vyāpāra* is defined as an effect of *karaṇa* which is also a cause of the main effect of *karaṇa*. But the difficulty is that the sense-organs are regarded as the instrumental causes of perception; the *vyāpāra* of the sense-organs is their epistemic relation (*sannikarṣa*) with the objects of perception. But in the case of perception of sound the sense-organ of hearing is *ākāśa*, and sound is a quality of *ākāśa*; hence the *sannikarṣa* of the ear with sound is inherence, the relation of a quality with the substance. But inherence is eternal and hence

cannot be an effect of the sense-organ of hearing. So how can this *sannikarṣa* of the ear with the sound be a *vyāpāra* of the sense-organ? It is explained here that *vyāpāra* is used in a technical sense to mean *sannikarṣa*. The usual definition of *vyāpāra* cannot apply here.

There is another point which I discuss here. This is the distinction between inference for oneself and inference for the sake of others. In Western logic of induction, a distinction is often made between discovery and proof. Discovery is personal, it is the process by which the subject arrives at the truth for himself; but proof may be meant not merely for others, but also for the person himself. One needs to prove a theorem for oneself, too. Thus the distinction between discovery and proof is not the same as the Indian distinction between inference for one's own sake and inference for the sake of others.

A second reason for inference for the sake of others being different from any form of inference in Western logic is that the 4 members of the 5 members of linguistic expression of this type of inference, are supported by 4 sources of true cognition admitted in Nyāya. Thus the 1st step is due to *śabda pramāṇa*, the 2nd step is due to perception, the 3rd step is due to inference, the 4th step is due to *upamāna* (according to the old school of Nyāya). the 5th step is the same as the 1st step, as proved. All the steps are asserted.

There are many points which need further clarification. But as this book is not an exhaustive exposition of Navya-Nyāya concepts, I do not enter into any elaborate discussion of these other points. I may mention here that the explanations given in this book are only tentative; for it is difficult to say what the final solutions of the problems in Navya-Nyāya are. There are so many different positions taken by different authors. The explanations given here are the usually accepted ones.

CHAPTER 1

THE NAVYA-NYĀYA THEORY OF COGNITION

1 INTRODUCTION

The term 'jñāna' (*cognition*) is used in Navya-Nyāya only in the episodic sense, never in a dispositional sense. It is used in a very broad sense to include sensing, perception, memory, introspection, assumption, doubt, belief (true or false) etc. Cognition, then, is awareness of facts, objects, mental states, etc.

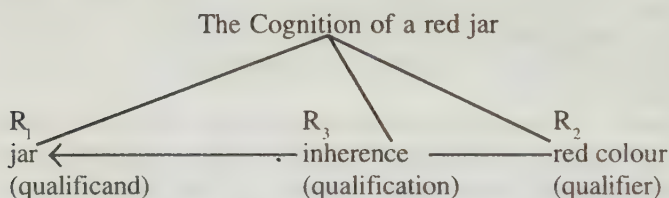
Navya-Nyāya philosophers use cognitive terms like 'belief' (*niścaya*), 'doubt' (*samsaya*) only in the episodic sense, while Western philosophers use these terms very often in the dispositional sense. I shall use these words in two senses in two contexts. This will not create any confusion as the contexts will make it clear in which sense the terms are used.¹

Cognition which can be expressed in words is directed to a complex object, aRb , of three factors, a , R , b . In the cognized structure, aRb , a is the qualificand of the cognition, b is the qualifier and R , the cognized relation is the qualification. It should be noted that the first term of the cognized relation, R , is the qualificand of the cognition. The second term of the cognized relation is the qualifier. The qualificand and the qualifier of cognition are dependent upon the relation cognized, i.e., R . For example, when a cognition is expressed in the sentence 'this is a cow', the qualificand is, of course, the object, present here and now, denoted by 'this'. But the qualifier is not unambiguously determined. If the cognized relation is inherence, i.e., the sentence expresses the cognition 'this is cowness-possessing', then cowness becomes the qualifier. But if the cognition expressed in the sentence is of a relation of identity between this object and the particular cow now perceived, then it is the cow which becomes the qualifier because the relation of identity holds between this object and the cow.

The cognized relation, the qualificand and the qualifier of a cognition are all objects. In Navya-Nyāya sentences expressing cognition are always given *de re* interpretations. To cognize 'this is a cow' is to cognize this as a cow, often, this as cowness-possessing. There is no proposition admitted in Navya-Nyāya, a sentence does

¹ Many contemporary philosophers use different terms, for example, 'Belief₁' and 'Belief₂', to distinguish between the episodic and dispositional senses. J.F. Ross 'Testimonial Evidence' in *Analysis and Metaphysics*, ed. Keith Lehrer.

not state a fact but describes only a complex object. When I perceive that this is red, I perceive a red object, an object as red-colour-possessing. In the ontology, however, there are no complex objects. The reals are all simple. A red jar is ontologically not a separate real over and above the jar, the red colour and the relation of inherence of the colour to the jar. Although the cognized object, the red jar, is one object relative to the cognition, outside the context of this cognition, in the ontology, there is no red jar as a complex reality. The unity of the cognized object is explained by relating one cognition to the three ontological reals by three different relations. This may be explained by the following diagram:



The one cognition, the cognition of a red jar, is related to three ontological reals by three different relations. These relations which the cognition has to the three reals become known only in a secondary introspective awareness of the cognition. Although the primary cognition is, as a matter of fact, related by these three relations to the three different reals, these relations to the three objective elements are not known. The unity of the cognized structure consisting of these different ontological reals is due to their relations to one and the same cognition. The cognition of a red jar may be described as the cognition which has red colour as its qualifier the jar as its qualificand and inherence as its qualification.

When two objects are related by a relation they become correlatives by that relation. Thus in the objective complex aRb , a and b are correlatives by R . In the Navya-Nyāya terminology the property of being the first term of relation R located in a (*anuyogitva*) is determined by the property of being the second term of the relation R located in b (*pratiyogitva*), and vice-versa. In the cognized object aRb , a has the property of being the qualificand determined by the property of being the qualifier resident in b . Thus the cognition of a red jar may be described as the cognition which has the property of being its qualificand resident in a jar determined by the property

of being its qualifier resident in red colour.

It is necessary to understand the function of relation in a cognition. Although a relation, *R*, is said to be between its terms, *a* and *b*, still the relation is not related to its two terms in the same way. Jayadeva Miśra says that it might be argued that as a relation is determined by both its terms, a cognition of a relation in a qualificative cognition must require the cognition of the qualificand just as much as of the qualifier. The answer is that although a relation is *between* two terms, still it is the second term (*pratiyogin*) which determines the relation and not the first term (*anuyogin*). This is enough to explain the meaning of relation words. This becomes clear when we consider such a term as 'colour-possessing' ('coloured'), which produces the cognition of inherence of colour which is the second term, the things which are coloured are the first term of inherence. If things are the second terms (*pratiyogins*) of inherence, which get known when a relation is known, then, there would be at times a cognition of thing-possessing colour. This, however, never happens : we always cognize the inherence of colour.

But, then, a question arises about contact as a relation. A cognition of contact requires a cognition of both its terms. The solution is that in perceiving two things related by contact it is the cognition of the second term of the relation which must occur prior to the cognition of the relation. The first term of the relation is cognized at the time of perception when it is epistemically related with the sense-organ. This is because contact like two-ness is *vyāśajyavṛtti* which belongs to both, but not to each. So in the cognition of such qualities it is necessary to cognize both the terms. However, two-ness is not a relation. Because of the *de re* interpretation of sentences expressing cognition it is necessary to introduce a concept of a mode of cognition of an object. For example, if I cognize a cat on the mat, i.e., a cat as being on the mat, the cat is the qualificand, the mat is the qualifier and being on (contact) is the relation. What is objectively a cat may be cognized as a white furry thing; instead of cognizing the cat on the mat I may cognize the white furry thing on the mat. Still it is the cat which is the qualificand of the cognition in both the cases. The difference between the two cognitions is due to the different modes under which the thing cat has been cognized. In the first cognition the cat has been cognized as a cat, i.e., under the mode of catness which is the property of being a cat. In the second cognition the cat is cognized under the mode of being a white furry

thing. Thus the two cognitions are different because the modes under which the same qualificand, the cat, has been cognized are different. These modes under which a qualificand is cognized are objective properties belonging to the qualificand. The modes under which a qualificand is cognized in different cognitions are technically called 'limitors of being the qualificand of the cognition', or 'limitors of the qualificandness of the cognition'. So also with the qualifier. A qualifier is an object which may be cognized under different modes in different cognitions. These modes under which a qualifier is cognized in different cognitions are called 'limitors of the qualierness'.

We have already stated that the property of being a first term of a relation determines or is determined by the property of being the second term of the relation. Now in the expression 'cognition of an object' the word 'of' stand for a relation. Objectivity is therefore determined by the cognition or cognitionness.

According to Navya-Nyāya the correlative of the object is not the subject which knows the object but the knowledge or the cognition. It is the cognition which has the object. 'Viṣaya' is the Sanskrit term meaning the object: the term 'viṣayin' (literally that which has the object) means the cognition. The usage of 'viṣayin' in Navya-Nyāya is radically different from that in Advaita Vedānta. In Advaita Vedānta the self which is the knower is identical with knowledge; hence in Advaita Vedānta the term 'viṣayin' means the knower. But in Navya-Nyāya as also in Nyāya in general the self which is the knower is ontologically different from the knowledge or the cognition which belongs to the self as its substance. Cognition is an attribute of the substance which is the self. Hence the known is not correlative to the knower but to the knowledge or the cognition. Two cognitions belonging to the same self may differ as existents i.e., as temporal attributes of the self ; but more importantly two cognitions differ when their objects differ. More specifically, the qualificand, the qualifier and the qualification are regarded as objects of the cognition.

2. NATURE OF COGNITION

Cognition is a state of the self which refers to an object which is either simple or complex. In the case of determinate cognition, as we have already explained, the object consists of three elements, a qualificand, a qualifier and the relation of qualification between

them. It is to be noted here that according to Nyāya, the cognition does not contribute anything to the object. The qualificand, the qualifier and the qualification are all objectively real. This means that cognitive statements have to be given a *de re* interpretation. Thus the cognition will not have the form of 'the table is brown'; it will have the form of 'the table as brown', where the table, the brown colour, and the relation of inherence between the brown colour and the table, are objectively real in the same sense. As is well known, Navya-Nyāya admits seven categories of reals which have the common characteristics of existence, namability and knowability. Knowledge is of an object which exists independently of the knowledge. This is true even in the case of illusory perceptions which we shall explain in detail later on.

There is a further difference of Indian logic in general, and Navya-Nyāya in particular, from western logic and philosophy. In dealing with knowledge, Western philosophers use as a rule indirect narration, 'knowing that' is the definiendum of definitions of knowledge. But in Sanskrit the 'that' cannot be translated. As cognitions have to be expressed in words for philosophical discussion, they are expressed in direct narration such as cognition of the form 'fire'. The phrase 'cognition of the form' means the form of the sentence in which the cognition is expressed. Cognition as an attribute of the self cannot have any form which is physical shape. So the usual Sanskrit terminology is 'ity ākāra jñānam', meaning the *ākāra* of the *abhilāpavākya* of the cognition. According to Navya-Nyāya a single inflected word (the stem or the root + the appropriate suffix) is a sentence. In dealing with inference which is a kind of mediate cognition, it is usual to say that the inference is of the form, (the) hill (is) fire-possessing, the reason being smoke. This means that all cognitions are expressed in language by the subject who has the cognition and is aware of it infallibly in introspection.

3. DURATION OF COGNITIVE MENTAL STATES

(A) *Three moments of an act*

Cognitions, i.e., actual conscious states of believing, doubting, supposing, judging, knowing, sensing, etc., have generally three moments or phases.² (a) a moment of origination, (b) a moment of

² Exceptions of this rule are instances of *apekṣā-buddhi* which have two moments of duration.

duration in which an act produces its own trace, and (c) a moment of cessation as a conscious state.

The first point is that two acts cannot *originate* at the same moment. An act originating at t will prevent every other act from originating at t . The Navya-Nyāya argument is based on the theory of voluntary action. Every voluntary action is caused by a certain cognition of an object that it is either desirable or undesirable. If more than one cognitive act could originate at the same moment, then they could all continue to exist together. In introspection, one would cognize all these cognitions of different objects some of which may be desirable. So one would not know how to act whether to go in for one desirable object, or for another, or for a third one. So there will be total arrest of voluntary action if more than one cognition is admitted to originate, and hence to endure, at the same moment. The conceptual distinction between many acts is made in Navya-Nyāya in terms of the concept of moment. One of the main differences between actual internal states, cognitive or non-cognitive, and dispositions, is that innumerable dispositions can exist and endure simultaneously while only one actual state can originate or endure at one moment.

(i) *Relation between an act and a disposition*

This relation is conceived as a causal one, i.e., an act produces a disposition as a cause produces its effect. There can be no disposition which is not caused by a previous act. The disposition which is thus caused by an act is memory trace which will again produce only a memory when it is stirred up or activated. The disposition will not be the direct cause of any type of knowing except memory-cognition, and will not, for example, be the direct cause of any behaviour, even of speech behaviour. Now, although the relation between an act and a disposition is direct and straightforward, there is a controversy among philosophers of the Navya-Nyāya school on the nature of the relation between a disposition and an act. We have already stated that a disposition produces a memory cognition when it is activated. This is again a causal relation, i.e., the disposition is the cause of the memory cognition, but the difficulty here is whether the disposition should continue to exist as a disposition even after it has produced the memory act of cognition. According to one section of Navya-Nyāya philosophers a disposition after producing the memory act will itself be destroyed. It will no longer remain that disposition

although the memory act again will leave behind it a new disposition which will be stronger than the old disposition in the sense that it will not require much excitation to bring about another act of memory cognition. The difficulty of this theory seems to be that it has to postulate innumerable dispositions of almost the same cognitive form. This is what has led other philosophers of the same school to hold that a disposition is not destroyed even after the production of a memory cognition but is rather strengthened by this production. This is the law of practice which can be stated as follows : A disposition gets strengthened by being activated frequently. This seems to agree with the commonsense view that in order to strengthen a memory trace we have to activate it a number of times.

It is to be noted that perceptions are of three kinds of objects—some objects of perception are desirable and hence to be attained; some objects are undesirable and hence have to be avoided; again there are objects of perception to which the perceiver is indifferent. For example, when walking on the road, one may perceive pebbles, grass, etc., on the road. But one wants neither to have them, nor to avoid them, one is indifferent to such objects which do not interest one. Now the perceptions of objects to which one is indifferent do not produce any impressions and therefore, cannot be remembered. For memory is caused by impressions left by informative cognitions, and as there are no impressions of perceptions of indifferent objects there cannot be any memory of such objects.

Then there is another point. Impressions left in the self by informative cognitive episodes are causes of memory. But this does not mean that all details of the original cognition have to be recalled in memory. It may be that only some details of the objects cognized are recalled. This kind of memory is called memory with other details not recalled (*pramuṣṭa*). One may also have memory of full details of objects as originally cognized. But this is not true in all cases.

Now we pass on to a discussion of relations between two acts.

(ii) *Relation between acts*

These relations have been conceived in different ways which can be classified broadly into two types: (i) psychological relations and (ii) epistemological relations; but both these types of relations are *causal relations*. We shall call those relations psychological which obtain between two acts of cognition simply as *occurrences*, or as

episodes but not as cognitions of objects; whatever object be cognized in the acts will be immaterial so far as this type of relations is concerned.

(B) Psychological Relations

There are two types of psychological relations between two acts. The first is the relation between two acts so far as their moment of origination is concerned. We have already stated that according to Navya-Nyāya two acts of cognition cannot originate at the same time and have explained the reason for this theory.

The second relation is the relation of the killer and the killed between two successive acts. This is also a psychological relation in the sense that this relation is not dependent upon the objects which may get known in these acts. This is a relation between two successive acts again as occurrences or episodes, i.e. merely as acts of consciousness. A disposition according to the theory that we have accepted is a more permanent feature of the self, whereas an act is momentary so far as its duration is concerned. Now the problem is why should an act not endure for more than one moment, or why should an act cease to be an act? The Navya-Nyāya answer is that an act continues to be an act so long as it is not destroyed as an act by its successor. It does not matter whether the successor act has the same thing as its object as the preceding act or not. That is, reference to the objects of the cognitions is immaterial here. We shall note here, however, that it is necessary to conceive the preceding act (which gets killed) to meet its killer. The succeeding act must meet the preceding act if only for a moment; that is why it is necessary to assume that the succeeding act must originate while the preceding act endures. If the preceding act were already over, then it would have been over for no reason at all. It must be pushed out of consciousness, must be killed as an act by its successor. So this is also a psychological law.

(C) Epistemological Relations

The epistemological laws have been conceived in different ways to describe different types of relations between two acts of cognition. These laws are non-psychological in the sense that they hold for acts of consciousness only as referring to their objects; i.e. reference to objects of these acts is essential for this type of relation to obtain between them. We shall give here examples of three different types of such relations.

(a) The first example is of a very general nature. Navya-Nyāya determines the strength of the conditions of different forms of cognition. In every moment of the waking state, conditions for the perception of something or the other are present. The problem here is, then: how is it ever possible for us to be not constantly perceiving objects, but to have inference, or to understand what others say to us? Suppose I am now sitting on a chair, conditions for perceiving all objects in front of me are present. How then can I infer, as I do now, that it is going to rain very soon?

Navya-Nyāya distinguishes here between two types of cases :

(i) when there is no special desire for having a special type of cognition; and (ii) when such a desire is present.

Case (i) : According to Navya-Nyāya this is possible only if the conditions of making this inference *predominate* over the conditions of perception. Now, in determining the relative strength of the conditions of perception, inference, understanding the meaning of sentences heard, Navya-Nyāya refers to objects of cognition. If the object of cognition is the same, then the conditions of perception prevail over conditions of inference, verbal knowledge, etc. This presupposes that what we perceive can be justified by inference, or corroborated by what others say, i.e., what is perceived may be the same as what is inferred or known from others. If, however, the objects are not the same, then the conditions of inference prevail over the conditions of perception. Thus if conditions for perceiving that it is raining are present, then even if conditions for inferring the same are present, we shall have perceptual knowledge, and not inferential knowledge. But if conditions for perceiving a table (viz., that the table is brown) are present, and also the conditions for inferring that it is raining are present, then because the objects of perception and inference are different we shall have the inference.

Case (ii) : However, in every case of cognition, the desire to cognize in a certain way rather than in any other way will produce the desired type of cognition; i.e., desire to cognize in a certain way has overriding influence on the mode of cognition.

(b) A second example of a non-psychological relation can be explained thus. There are certain propositions such that the conditions which produce the cognition of the one produce the cognition of the other. *Nyāya Kośa* states that in such a case the two propositions are the objects of one and the same cognition. All examples given to illustrate this type of relation are logically equivalent con-

verses of relational propositions.

(c) A third example which we now give of a non-psychological relation obtaining between two acts of cognition is very important. It is the relation of one act preventing the occurrence of another act. Navya-Nyāya, of course, distinguishes here between the psychological relation between two acts which also prevents the occurrence of one act when the other is present. So we shall have to distinguish here between two altogether different types of preventer-prevented relations between two acts of cognition. The psychological relation does not depend upon the objects of cognition but holds between two cognitions as occurrences. As an example of such a relation given in Navya-Nyāya, we may cite the case of man who is very much interested in or inquisitive about women. This inquisitiveness about women will prevent him from having a cognitive act. Now the presence of this inquisitiveness prevents the occurrence of all cognitive acts by a psychological law. It has nothing to do with the objects which are known in such acts.

But the most important type of preventer-prevented relations which obtain between two cognitive acts is by virtue of their objects and, therefore, this relation is not psychological.

Now we shall explain the concept of a preventer in general. It is a causal concept. A preventer is really something very similar to what Mill calls a negative condition, the presence of which will prevent the occurrence of an effect. Thus if the fuel is very wet, then the *presence* of this wetness prevents the emergence of fire and therefore the wetness of the fuel is a negative condition, i.e., a preventer, of fire. So also in the case of cognitive acts. Every cognitive act is an effect of certain factors. It is produced by a number of causal factors some of which are positive and some are negative. Any factor the absence of which is *necessary* for the production of an effect is a preventer of the effect. Navya-Nyāya discusses this type of relation between cognitions only in the case of contradictory or contrary propositions. In explaining the Navya-Nyāya theory on this problem we begin by referring to a difference of views among contemporary Western logicians. Arthur Pap, for example, says : "Thus explicitly self-contradictory sentences do not express anything that could possibly be believed; and the impossibility in question is not just psychological. That somebody should believe both (and at the same time) *p* and not-*p* is itself a contradictory supposition. The frequent claim that people, alas, are capable of holding self-contradictory

beliefs notwithstanding the statement 'x believes at t that p and x believes at t that not-p' implying the conjunction 'x believes at that p' and 'x believes at t that not-p' is self-contradictory, though not formally so'.³ Eric Toms, on the other hand, asserts, "That an object may be said or even believed both to have and not to have a certain property, everyone knows to be possible, alas."⁴

The problem here seems to be whether it is logically possible for one and the same person to believe that p and believe that not-p. According to Navya-Nyāya this controversy can be solved easily by a distinction between an actual state of believing and a disposition to believe. We have already seen that a second act can originate when a prior act endures so that if we symbolize by 't' the time when the first act originates by 't'" the time when it endures, then we can say that it is logically possible that 'x believes at t that p and x believes at t' that q'. The point which Pap is trying to make here can be explained on the Navya-Nyāya theory in the following way. We can never say truly 'x believes at t that p and x believes at t' that not-p', i. e., so long x *continues* to consciously believe that p, he cannot even *start* believing that not-p; so long as the belief that p endures as a conscious state the other act of believing that not-p cannot *even originate*. This impossibility has got nothing to do with the psychological mechanism of the origination of acts, but is completely determined by the logical relation between p and not-p. According to Navya-Nyāya the relation between a preceding and a succeeding act is that of the killed and the killer; the two acts have to meet, if only for one moment, so that the succeeding act can kill the preceding act. But in the case of cognition of two contradictory propositions, the presence of one act prevents the origination of the other act, so that they can never be co-present, not even for one moment. This is because, under conditions specified below, the cognition of the proposition is a *negative* condition of the cognition of its contradictory, i. e., the absence of one act is necessary for the occurrence of the other act, so the preventer act and the prevented act can never meet. If, however, the belief that p has lapsed into a mere disposition and is no longer a conscious state, or if it is forgotten and not remembered at the moment, then the mere disposition will not prevent the same person from believing actively the not-p. This explains the sense in

³ *Semantics and Necessary Truth*, p. 173.

⁴ *Being, Negation and Logic*, p. 104.

which Tom's statement is correct.

Thus we have come to a fundamental difference between a disposition and an act. So long as a conscious act of believing that p remains a conscious act, it will prevent a person from consciously believing that not-p; but if the belief is a mere disposition and is not recalled, then the same person can believe that p and also that not-p, and one of the beliefs can become also actualized at one time. A person can believe that not-p consciously only so long as he does not realize that he also believes that p; i.e., a person cannot, consciously, knowingly, hold self-contradictory beliefs; but unknowingly, without realizing that he does so, a person can hold beliefs (as unconscious dispositions) which may not be consistent.

So far, in discussing this point, we have using 'believe', instead of 'cognize'. The Navya-Nyāya philosophers express their theory in terms of 'cognize', which is much wider than 'believe' and includes doubting, assuming, disbelieving, etc. So it is necessary to impose conditions on both the preventer act and the prevented act of cognizing contradictory propositions.

Conditions of the preventer cognition (*pratibandhaka jñāna*) :

- (i) The cognition must be attended with belief, for example, it must not be a supposition or a doubt.
- (ii) It may be either true or false; in either case it must not be cognized, truly or falsely, to be false, or even doubted to be false.
- (iii) It must be about the proposition which is contradictory or contrary to the proposition cognized by the prevented cognition.

Conditions of the prevented cognition (*pratibadhya jñāna*):

- (iv) The cognition can be either true or false.
- (v) It may or may not be attended with belief.
- (vi) It must not be a supposition.
- (vii) It must not be an ordinary perception, or an illusory perception due to any psychophysical defect.
- (viii) The cognition must propositional.

Let us explain these conditions. We first note that we are dealing with cognitions of contradictory or contrary propositions only. A mere supposition of a proposition can neither prevent nor be prevented by a cognition of the contradictory proposition. If we suppose that S is P, then this supposition, when it endures as an actual

conscious state, cannot prevent us from cognizing or even knowing that S is not P. So also even if we know that S is P, this knowledge will not be able to prevent us from supposing that S is not P; only in this case the supposition will be cognized as contrary to fact. Then an illusory perception cannot be prevented from occurring by any cognition of the contradictory proposition. Thus if we are suffering from jaundice, then even though we know actively that the wall is not yellow, yet we shall see that the wall is yellow; only in this case the illusory perception will not be attended with belief. Thirdly, the preventer cognition can be either true or false; it is not always the case that only a true cognition can prevent the occurrence of a false cognition, for even a false cognition held with firm conviction can prevent one from cognizing the truth. But whether our cognition is true or false, we must not cognize it in a higher order act to be false if it is to prevent the cognition of the truth. For if we know that our cognition is false, then we shall withhold our belief from it, and this cognition without belief will not be able to act as the preventer cognition. The cognition which is prevented may, however be a doubt, i.e., cognition not attended with belief; if we cognize with belief that S is P then we cannot even doubt that S is not P.

Now we summarize. In order to be able to talk about different acts of cognitions we shall use numerical subscripts thus : Cognition₁ (abbrev.cog₁) cog₂ cog₃....., cog_n..... the three moments of an act of cognition will be symbolically represented thus :

the moment of origination == M^O

the moment of duration == M^D

the moment of cessation == M^C

Then 'the moment of origination of cog₁' will be written as 'M^O₁' 'the moment of origination of cog₂', as 'M^O₂', 'the moment of duration of cog₃' as 'M^D₃' and so on.

The first point we have made is that no two acts of cognition can originate at the same time. This can be stated thus:

(i) (j) [$i \neq j \equiv M^O_i \neq M^O_j$]

or simply as

(A) (i) (j) [$i = j \equiv M^O_i = M^O_j$]

Our second point may be stated as follows :

Let cog₁ be the cognition that p,

cog₂ be the cognition that I cognize that p,

cog₃ be the cognition that not-p.

Then, although (A) prevents

$$M_1^0 = M_2^0$$

Still it is necessary that

$$(B) M_1^D = M_2^0,$$

The third point is to the effect that even

$$M_1^D = M_3^0$$

is not possible, if cog_1 and cog_3 satisfy the conditions (i) — (viii).

Finally, if conditions for both

(i) perceiving that p, and

(ii) inferring that q

are simultaneously present, then

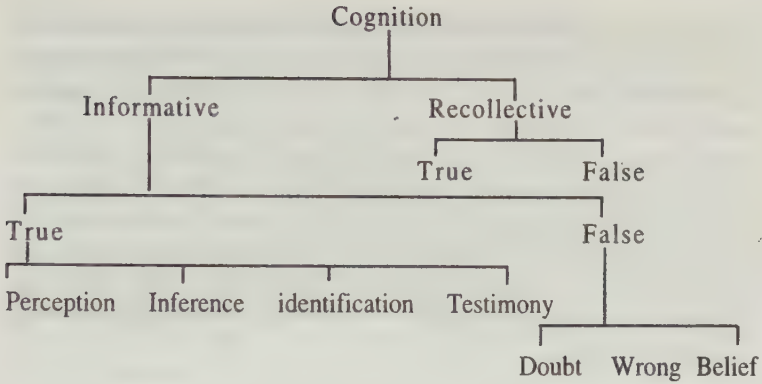
c) If $p = q$, then the perception that $p(q)$ will normally occur, but if $p \neq q$, then inferring that q will normally occur.

4. CLASSIFICATION OF COGNITIONS

Cognitions are classified in different ways on different principles of classification. The first classification of cognitions is into informative (*anubhava*) and recollective (*smṛti*). Informative cognition, again, is classified into true cognition and false cognition. True cognitions are classified into four different kinds --- perception (*pratyakṣa*), inference (*anumiti*), identification on the basis of similarity (*upamiti*) and testimony (*śābda*). False cognitions are classified into two kinds --- doubt (*saṁśaya*) and wrong belief-episodes (*viparyaya*). Recollective cognition is excluded from true belief. True cognitions in the sense of Navya-Nyāya cannot be identified with knowledge in the Western sense of a justified true belief, (where 'belief' is not used only in the episodic sense).

There is one more point of difference between Western theories of knowledge and the Navya-Nyāya theory of cognition. As Navya-Nyāya deals with states of cognition it uses causation as explaining many points in the theory of cognition. It has been noted by Bernard Williams that the relations between propositions may be logical but the relations between beliefs about the propositions are causal.⁵ As Navya-Nyāya deals exclusively with internal states of different types of cognition it uses causality among the cognitive states, to explain many facts of its theory of knowledge.

⁵ *Problems of the Self*, p. 141.



5. SOME ONTOLOGICAL REMARKS

A. Collective and abstract terms

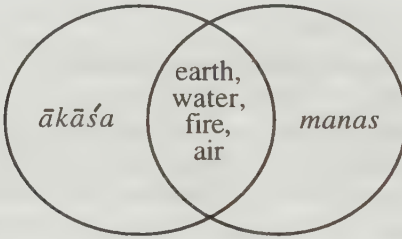
Proper, common, material nouns refer to substances. A collective noun refers to a collection of objects. But according to Navya-Nyāya philosophers a collection of objects is not ontologically a separate real over and above the objects of the collection. A collection is only an epistemological object of a cognition of a special type (*samūhālambana jñāna*). Although the Sanskrit term *Samūhālambana jñāna* literally means a cognition which has collection as its object, still the explanation of this cognition shows that there is no collection of objects as an ontological reality. The definition of this kind of cognition is that it is a cognition which has more than one principal qualificand. For example, the cognition of a jar and a piece of cloth has two principal qualificands, namely (i) the jar, of which the qualifier is jar-ness, and (ii) the piece of cloth, the qualifier of which is cloth-ness. But neither the jar nor the piece of cloth is a qualifier of each other or of any other object of the cognition. So they are two principal qualificands; they are not qualifiers of anything in that cognition.

Abstract nouns do not all mean the same type of reals. Abstract nouns mean that by which the objects meant by common nouns become those objects. For example, the abstract term 'man-ness' (humanity) means that by virtue of which a man becomes a man, which is the universal humanity. A universal is a repeatable entity which inheres in all and only those particulars which are its instances. But all abstract terms do not mean universals. Some mean properties common to many to which they are not related by inherence. For

example, the term 'elementness' (*bhūtatva*) means what is common to all the elements; yet it is not a universal because it leads to cross classification of objects. This may be explained by considering another abstract property -- being of finite magnitude (*mūrtatva*). There are five elements --earth, water, fire, air and *ākāśa* which have the property of elementness. Being of finite magnitude is present in earth, water, fire, air and *manas*, but is not present in *ākāśa* which is of infinite magnitude. Thus the two abstract properties although common to many cannot be regarded as universals (*jātis*) as they lead to cross classification of objects. This may be explained by the following diagram :

Elementness

Being of finite magnitude



It is to be noted that for cross classification (*sāṃkaryā*) it is necessary that some objects must have both the properties, and that there must be at least one object which has the one but does not have the other. It is clear from the diagram that earth, water, fire and air belong to both the classes; *ākāśa* is an element but does not have a finite magnitude, and *manas* which has finite magnitude is not an element. So the two properties, elementness and being of finite magnitude cannot be regarded as universals proper.

There is another kind of abstract terms which do not mean any common property, but mean properties which are as particular as the objects to which they belong. For example, the abstract term 'being manifest' *udbhūtatva* means a property which differs from colour to colour, being manifest which belongs to a white colour does not belong to blue colour; the property of being manifest which belongs to a blue colour does not belong to white colour. The point here is that according to Navya-Nyāya colours may be manifest or non-manifest. Colours belonging to the atoms or the sense-organ of vision

are unmanifest and therefore cannot be perceived by the eye. Only objects whose colours are manifest are perceptible by the eye.

Thus all abstract terms do not mean the same type of reals.

B. Adjectives

Adjectives mean objects having qualities. Thus the term 'blue' (as an adjective) means a thing having blue colour. But as we have already seen, according to Navya-Nyāya philosophers there is no complex object as an independent real. There is also a Navya-Nyāya principle that a qualified entity is not ontologically different from a non-qualified, pure entity (*viśiṣṭaḥ śuddhān nātiricyate*). This principle is necessary to avoid what is regarded as the paradox of predication. For example, if we judge that the jar is blue, then the subject is the jar and when the predicate 'blue' is affirmed of it the jar becomes different by becoming a blue jar. Thus predication involves a paradox; no predicate can be affirmed of the subject without changing it ontologically. The Navya-Nyāya principle that any object remains identical with itself ontologically with or without being qualified solves the paradox of predication. The jar remains identical with itself ontologically even when it is said to be blue. The jar is identical with a blue jar.

Now a problem arises : if a blue jar is ontologically identical with a jar, how is it that we do not *cognize* every jar as a blue jar? This might be explained by introducing a concept of one-sided identity. A blue jar is a jar, but a jar is not a blue jar. One-sided identity is asymmetrical. This is a rather fanciful explanation. The Navya-Nyāya explanation is that when a jar is blue there are two properties which belong to the jar — jarness and blue colour. The jar is the substratum of these two properties and the two properties are its superstrata. The substratum has the property, substratumness, (*adhikaraṇatā*) and the superstrata have the property, superstratumness (*ādheyatā*). The Navya-Nyāya theory is that the two superstrata have the same superstratumness but the substratumnesses determined by the superstratumness resident in two superstrata are ontologically different. It is because the substratumnesses are different that a jar and a blue jar have different substratumnesses—one determined by jarness and the other determined by jarness and blue colour. Because of the difference in the substratumness that a jar is not cognized as a blue jar, even though the superstratumness is the same in both the cases.

So the Navya-Nyāya principle that a qualified object is not ontologically different from an unqualified object means simply this: the superstratumness belonging to jarness and the superstratumness belonging to blue colour are one and the same. The Navya-Nyāya principle keeps the possibility open for the qualified substratumness being different from the unqualified substratumness.⁶

According to Navya-Nyāya it is the qualified substratumness which determiness the cognition of a qualified object.

6. THE NAVYA-NYĀYA THEORY OF THE SELF

All Navya-Nyāya philosophers do not say exactly the same thing about the nature of the self. There are considerable differences of opinion among them. There is, however, a sort of family resemblance among these theories, and in this a paper I shall highlight these resemblances.

Differences among Navya-Nyāya philosophers start with the terms they use to introduce the notion of the self. Thus Viśvanātha in his *Bhāṣāpariccheda* introduces the self by the term 'dehin'⁷ which means what has or owns a body. Thus the meaning of the term 'body' will determine what has a soul. Annam Bhaṭṭa, however, uses the term 'ātman' to introduce it.⁸ Although the terms introducing the self are thus different in different texts, the theories are more or less the same. I shall now explain this common theory in some detail.

According to Navya-Nyāya, an individual self is a substance which has 14 qualities, and differs from individual to individual. By 'individual', Viśvanātha means not only a human being, but also animal, and also a plant. For Viśvanātha holds that plants are bodies. Bodies composed of earth are, according to him, of 3 kinds, born (i) from a womb, (ii) from eggs, and (iii) not from sex activity as in the case of some insects, plants, and those who are in hell.⁹ This shows that those who are in hell continue to have bodies composed of earth.

The 14 qualities which an individual self has are : (1) number (*saṁkhyā*), (2) magnitude (*parimiti*), (3) separateness (*prthaktva*), (4) contact (*samyoga*), (5) disjoining (*vibhāga*), (6) consciousness (*buddhi*), (7) pleasure (*sukha*), (8) pain (*duhkha*), (9) desire (*icchā*), (10) aver-

⁶ "Viśiṣṭasyā 'natiriktatayā viśiṣṭādhikaraṇatayāḥ pratīitiniyāmakataive 'tiprasaṅga-bhaṅge..." (Siddhāntalakṣaṇam Jāgadīśi, pp. 124-25).

⁷ "Kāla-dik-dehino-maṇaḥ" *Bhāṣāpariccheda*, Verse 3.

⁸ "...ākāśa-kāla-dig-ātmā-manāṁsi..." *Tarkasaṁgraha*.

⁹ *Bhāṣāpariccheda*, Verse 38, and *Siddhānta-muktāvalī* on it.

sion (*dveṣa*), (11) inner effort (*prayatna*), (12) (memory) trace (*saṁskāra*), (13) merit (*dharma*), and (14) demerit (*adharma*). Before I explain these qualities in detail, it is necessary to note that (1) — (5) are common to the self and the not-self. This shows that according to Navya-Nyāya, as also according to older Nyāya, there is no opposition between the self and the not-self which share as many as 5 qualities. This theory is completely opposed to the Advaita Vedānta theory according to which the self and not-self are mutually exclusive.

Another important point to be noted is that although the individual (empirical) self is conceived as the knower of objects, enjoyer of pleasure, agent of actions, moral or immoral, still according to Nyāya generally, and Navya-Nyāya in particular, thinking, feeling, willing, etc., belong to the self as attributes belong to a substance, just as the red colour belongs to a red apple. This shows that the self does not do anything in knowing, feeling and even acting; it remains always the passive substance to which all qualities belong in the same way. We can count a self which, therefore, has a number. The number belongs to the self in the same way as consciousness, feeling, desire and other qualities, i.e., by the relation of inherence. Number inheres in the self just as consciousness, pleasure, pain, desire, aversion inhere in it. I now explain the 14 qualities of the individual empirical self.

(1) Number——The selves are as numerous as there are living beings. Navya-Nyāya philosophers accept the older Nyāya theory that everything living lives because it has a self with which its body is intimately connected. We shall explain in detail the nature of this connection later. We have already stated that according to Viśvanātha even plants have selves,¹⁰ but Praśastapāda, Śrīdhara Bhaṭṭa, Vācaspati Miśra and the Buddhist philosopher Dharmakīrti do not accept that plants have life and, therefore, souls. Annam Bhaṭṭa has talked about bodies which we and others have.¹¹ But he does not explain who these 'others' are. But as there are infinitely many men, even if only men have selves, the number of selves will be infinite.

(2) Magnitude——All the individual selves are eternal. According to Nyāya, no composite substance can be eternal, for it comes into being when its parts come together and depends for its existence

¹⁰ Viśvanātha follows Udayana's theory in *Kiraṇāvalī*.

¹¹ "asṁadādinām" *Tarkasaṁgraha*.

on their continued staying together. As every composite substance has parts, it comes into being when the parts are conjoined, so no composite substance can be eternal. Any eternal substance must be simple, i.e., partless. Now according to Navya-Nyāya philosophers, there are two types of partless substances. *Ākāśa*, space, time are eternal, but are not atoms. They have the greatest magnitude without being composite. The self being eternal must be either atomic or ubiquitous. The self cannot be atomic, for qualities inhering in an atom are imperceptible, but feeling, consciousness, desire, aversion, inner effort are known in introspection. As these qualities of the self are perceptible, the self cannot be atomic, hence it must be ubiquitous.

A ubiquitous substance (*vibhu dravya*) is that with which everything having limited magnitude is in contact. There are two kinds of substances which have limited magnitude—atoms and composite objects. Only a ubiquitous substance, though partless, has infinite magnitude (*paramamahat parimāṇa*). A ubiquitous substance is not in contact with any other ubiquitous substance.

Now every individual self, being ubiquitous, is not limited within the body, but is infinitely spread out so that substances in heaven and earth, in the whole universe, can be in contact with it. This is the Navya-Nyāya conception of omnipresence. The self is in contact with every substance in the universe except other ubiquitous substances. Now because every self is everywhere, it is incapable of movement which is leaving its present position and coming to a new position. Thus according to Navya-Nyāya, the self is incapable of any activity which is always understood in terms of motion. So thinking, feeling and willing cannot be active states of the self, for there can be no activity in the self.

If every self has infinite magnitude, is omnipresent as much as God who is the supreme self is, then how does God differ from the finite selves? The answer is that the supremacy of the supreme self consists in omniscience and omnipotence in the sense of creating everything which is created. As Navya-Nyāya admits infinitely many uncreated eternal substances, like atoms, space, time, *manas*, and finite selves, God cannot create them, for they are not created at all and are co-eternal with God.

Although the individual self is an infinitely extended substance, only (1)-(5) belong to it in its infinite magnitude. But (6)-(14) belong

to it only in so far as it is limited by the body. I know objects, i.e., knowledge of objects belongs to my self, not as it is infinitely extended, but only in so far as it is restricted within my body. Thus I know, like, dislike, remember, objects only so far as I am limited by my body. It must be noted that the infinitely extended self is partless, so it cannot be fragmented by the body just as space, though infinitely extended, becomes restricted within the four walls of a room without being fragmented. Thus the self is restricted by the body without being fragmented. This special type of relation of a partless substance which is infinite in magnitude to something which restricts it without fragmenting it is technically known as the limiting relation (*avacchedya-avacchedaka-bhāva*). So my self becomes a subject that has knowledge, feeling, willing etc., only so far as it is limited by my body (*śarīrāvacchinna ātmā*). It is this relation to my body which turns my self into a subject. Thus the body is not merely that which the self owns, but is the ontological presupposition of the self becoming a subject.

Another point to be noted here is that although every substance of restricted magnitude is *in* (contact with) the self, the self is not in anything, just as everything is in space, but space is not *in* anything. Thus it will be totally incorrect to say that the self is *in* the body. In the technical language of Navya-Nyāya, the self is the *anuyogin* of the relation of contact with other things, but never a *partiyogin*, a self cannot be located anywhere, just as space and time cannot be located anywhere.

(3) Separateness— Every self is separate from every other self, space, time, *ākāśa*, and other substances. Separateness is not just difference, not even ontological difference. Thus a colour is ontologically different from a thing which has it, yet the colour (not paint) cannot be separated from it.

(4) Contact -- Everything of restricted size is in contact with a self.

(5) Disjoining -- When a composite object is destroyed, as when an earthen jar gets broken, it is disjoined from the self with which it was in contact so long as it existed.

(6)-(14) are qualities which only individual selves have, (1)-(5) are common to selves and material substances.

(6) is consciousness.

There is a peculiarity of Navya-Nyāya theory of consciousness. Consciousness is identical with cognitive consciousness (*jñāna*). The other qualities of the self are unconscious states, although they get

known at the next moment of their origination by a higher order mental perception. Thus the feeling of pain is itself not a state of consciousness, but it gets known at the next moment it arises. So also with desire, aversion and inner effort. But a cognition is not as a rule known in a higher order introspective cognition. It is so known if we want to know it. A cognitive state manifests its object, but never itself. It has to be known in a higher order cognitive state which has the first order cognition as its object. But the higher order cognition cannot know itself, but has to be known in a still higher order cognition, and so on ad infinitum. But this infinite regress is not necessary. There is no necessity of knowing a cognition. It may be known if we want to know it. There is no self-revealing consciousness.

Consciousness as a quality of the self is not identical with the self. It is a quality which originates in the self under certain specific conditions. When any of these conditions is absent, there is no consciousness in the self, as in deep dreamless sleep. The self being eternal is always there, but not consciousness.

(7)-(8) Pleasure-pain. Pleasure is that which is known as something to be attained. Pain is that which is known as something to be avoided. Pleasure is produced by merit (13) and pain is produced by demerit(14).

(9)-(10) Desire-aversion. Desire is of two kinds --- desire for something for its own sake, i.e., as an end in itself, and desire for something as a means. Pleasure is an end in itself. An end in itself is that only by knowing which everyone wants to have it. So also absence of pain is an end in itself. Something is a means, if its knowledge leads to the attainment of an end in itself eventually (to stop an infinite regress of means).

Desire often involves actions to attain a desirable object. Rain, for example, is desirable under certain circumstances. But no one can do anything to bring it about. In many cases, however, one can desire to act. This desire to act is caused by two cognitive states of firm belief --- belief (1) that the object to be attained by action is desirable, and (2) that it is within the competence of the person to perform the action (that he *can* so act). This desire to act is prevented by belief in overriding undesirable results of the action. Thus a belief (wrong or right) that this pot of honey is mixed with poison, will prevent me from taking the honey. The point here is, to perform any act is to exert oneself which is always painful. This pain is unavoidable. Any

pain which is other than the inevitable pain is overriding pain.

An object of aversion is that which causes pain. Pain itself is the object of aversion in itself. Even if an object causes pain, it may also cause greater pleasure. Then that object will not be an object of aversion. That is, a firm belief (right or wrong) that the object causes more pleasure will prevent everyone from being averse to it.

(11) Inner effort — This is a state of the self of being moved to perform an action. One is moved to act only if the 3 conditions are satisfied — (i) the object to be attained by the action is good for me, (ii) I can perform the act, and (iii) I desire to perform the act. The mere desire to perform the act is not the same as being moved to perform it. This is a special state of the self postulated in all Indian philosophies, although the causal explanations are different in different systems. But 'being moved' is itself a quality of the self, is not the movement which is bodily.

(12) Trace — Memory is defined as that cognition which is caused only by a trace of previous experience. We have already noted that 'cognition' is used in Navya-Nyāya only in the episodic sense and that a cognitive episode endures only for one moment. At this moment of duration, the cognitive state produces its trace in the self, and this trace is more lasting. It continues to exist in the self after the episode has ceased to exist. A memory cognition is again an episode, and it is caused by the trace. A trace is an unconscious state, which can be known only by inference from the occurrence of the memory cognition. A trace, unlike the previous unconscious states of the self (7)-(11), cannot be known by mental perception. A trace can be known to exist by a sort of back calculation. As the memory cognition is now present, and as it could not have been present if a trace did not cause it, so the trace must exist. A trace may be very roughly regarded as a disposition.

According to Navya-Nyāya one may adopt any one of three attitudes towards an object of cognition, specially of perception. A perceived object may be perceived (i) as desirable, or (ii) as undesirable, or (iii) as neither desirable nor undesirable. In case (iii) one is indifferent to it. Now, according to N-N philosophers, one cannot get any memory of an object to which one is indifferent. Such a cognition does not leave any trace, so that the object cannot be remembered.

7. THE NAVYA-NYĀYA CONCEPT OF THE INDIVIDUAL

The individual man is really a particular self delimited by a body. As Navya-Nyāya philosophers hold that there are innumerable selves all different from one another, an individual man has a unique self. But as Navya-Nyāya philosophers also accept the doctrine of rebirth, a man in this birth may become an animal in his next birth. As the self of an individual remains the same whether he is born as a man, or as an animal, a human being must have a human body. Thus the uniqueness of the self cannot guarantee that the individual is a human being. Thus an individual man who is identical with his self must also have a human body. This human body delimits the self which is neither human nor non-human. Thus the body is very important for an individual man.

The self of the individual is, as we have already stated, is ubiquitous and all substances of limited magnitude like atoms and composite substances are in contact with it. Thus the self of an individual will be all over the earth, in the firmament, in the stars, and so on. Yet although the self of the individual is infinitely extended yet it is the subject of knowing, feeling and willing, only in so far as it is delimited by body. Thus knowledge, feeling, willing do not belong to the self all over, but belong to the self only in so far as it is restricted by the body. Thus knowledge, feeling, willing are qualities of non-pervasive occurrence (*avyāpya-vṛtti*).

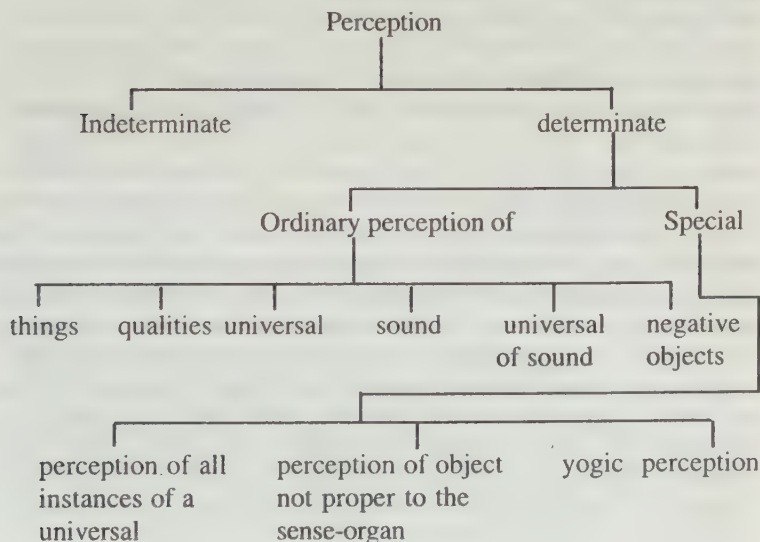
Then there is a function of the totality of all men in the creation of the universe. The universe is created for the enjoyment or suffering of human beings. The general causes of the creation of the universe are God's will, knowledge, time, as also the stock of merit and demerit of the individual human beings. Thus *adr̥ṣṭa* of every man is a general cause of the creation of the *universe*. Every individual has passed through innumerable births and deaths. There is no first birth of an individual, just as there is no first creation of the universe. A universe is created, endures for a long time then is lost in total dissolution. Again, another universe is created, and so the cycle of creation, duration and dissolution goes on. So also with the individual man, with the difference that he is not born again if and only if he attains liberation in this life. Thus in the creation of the universe the *adr̥ṣṭa* of men is as much responsible as God's will and knowledge.

Adr̥ṣṭa is the special cause of pleasure and pain of the individual, and is also a general cause of all type of cognition and other states,

internal or external, of the individual.

8. KINDS OF PERCEPTION

According to Navya-Nyāya perceptions are primarily of two kinds: (1) indeterminate and (2) determinate. Determinate perceptions again are of two kinds : (a) ordinary (*laukika*) and (b) special (*alaukika*). Ordinary perception involves epistemic relations (*sannikarṣa*) of six kinds. Special perceptions are of three kinds : (i) perceptions of all instances of a universal. (ii) Perception of an object by a sense-organ although the object is not a proper object of ordinary perception by that sense-organ. These two kinds of special perception are common to all men. (iii) This kind of special perception is available to only yogins who can perceive very small things like atoms, distant or future things and so on. The following diagram makes this classification of perceptions clear.



(A) Indeterminate perception

In ordinary perception of the determinate kind we have a qualificative cognition having a qualificand, a qualifier and a relation between them. For example, when we perceive something as a cow or something as cowness-possessing, the thing is the qualificand of the perceptual cognition. cowness is its qualifier and inherence is

the qualification (for, cowness inheres in the present thing). Now the Nyāya argument is that the qualificative cognition requires a cognition of the qualifier as its cause. If a person does not know what cowness is, he cannot know or perceive something as a cow. So the determinate perception of something as a cow requires the prior cognition of cowness. But this cognition of cowness which produces the determinate cognition cannot itself be a determinate cognition, as this will lead to an infinite regress; so, every determinate perception requires an indeterminate perception to stop the infinite regress. At this stage of indeterminate knowledge of cowness there is no knowledge of a relation. This indeterminate knowledge has to be perceptual, for in no other way can one initially know cowness in isolation.

This indeterminate perception of Navya-Nyāya has some similarities with what Russell once called 'knowledge by acquaintance' which he contrasted with knowledge by description. Knowledge by acquaintance requires a direct relation of the object with the knower. The Navya-Nyāya theory of indeterminate perception is similar to knowledge by acquaintance in this respect. There is however a fundamental point of difference. While according to Russell the object of acquaintance is the referent of logically proper names like 'this', 'I', etc., according to the Navya-Nyāya philosophers indeterminate perception of an object cannot involve words, not even proper names. This is because of the Navya-Nyāya theory that any word denotes an object or objects only under a mode which is a property of the object or objects. So a cognition involving words is necessarily a qualificative cognition of an object possessing a property. As indeterminate perception is postulated to causally explain determinate or qualificative perception, it cannot involve any name. This indeterminate cognition cannot also be expressed in language, for using language is possible only when there is a distinction between the meant object and the mode under which it is meant. So Navya-Nyāya philosophers use inference to postulate this primitive kind of perception.

(B) Determinate perception

Determinate perception is qualificative cognition the object of which is of the form aRb . When we perceive a cow we classify the perceived object as a cow, or as cowness-possessing. In this cognition the perceived object is the qualificand, cowness is the qualifier and inherence is the qualification. The object cognized is, therefore, a qualified object, but not a fact.

Both indeterminate and determinate perception require the instrumentality of sense-organs. The sense-organs have to be related to the object perceived, but this relation is not merely an objective relation. It may be described as an epistemic relation, the relation of the sense-organ with the object that produces the cognition. There are six kinds of epistemic relations (*sannikarṣa*) in ordinary perception. Thus when we perceive a jar as jar-ness-possessing, the jar is the object of determinate perception. The sense-organ of vision is related to the jar epistemically by contact. When we perceive the colour of the jar, say, the red colour, it is the colour which is the object of perception and the sense-organ of vision has to be related epistemically to the red colour of the jar. This relation is a chain relation and cannot be a direct relation. The sense-organ of vision is related to the jar by contact and the red colour of the jar inheres in it. Hence the epistemic relation between the sense-organ of vision and the red colour of the jar is contact-cum-inherence. The same is the case when we perceive the thing-universal jar-ness. The sense-organ of vision is related to the thing jar by contact, and jar-ness inheres in the jar. So the sense-organ is epistemically related to jar-ness by contact-cum-inherence.

The distinction between a particular and a universal is not the same as that between a thing and a quality. According to Navya-Nyāya, qualities are as particular as the things to which they belong. So just as there are universals inhering in things—thing-universals—so also there are universals inhering in qualities—quality-universals.

When we perceive the universal of the red colour our sense-organ of vision has to be related to the universal of the red colour, i.e. redness, in a very indirect relation. The eyes are in contact with the jar, the red colour inheres in the jar, and redness inheres in the red colour. Hence the epistemic relation of the sense-organ of vision to the redness is contact-cum-inherence-cum-inherence.

Here we must note the difference between an objective relation of the sense-organ to the object perceived and the epistemic relation between them. When we perceive a jar the sense-organ of vision is epistemically related to the jar; yet objectively the jar is related to its red colour and the red colour to the universal of red colour by inherence. Thus although the jar is related to all of its qualities by inherence, when we perceive the jar we do not perceive all its qualities. Thus the objective relation between the jar and its qualities does

not produce the perception of all qualities of the jar simultaneously. It is a fact that a jar is objectively related to all its qualities, but this does not mean that whenever we perceive the jar we perceive all the qualities of the jar. To determine the epistemic relation between a sense-organ and the object perceived, we have first of all to note what object is perceived, a thing, its colour or the colour-universal, and then to calculate backward to the epistemic relation. So the epistemic relation between the sense-organ and the object perceived can be calculated only by first knowing what object is perceived.

According to Nyāya, the sense-organs are not parts of the body but are imperceptible elements (*pañca mahābhūta*). Thus the sense-organ of vision is the fire which is located in the eye-balls. The auditory sense-organ is the *ākāśa* which is imperceptible and is located in the earhole. According to Nyāya, sound is a quality of *ākāśa* which is the sense-organ of hearing. As a quality of *ākāśa* sound inheres in it. Hence when we hear a sound the sound is related to the sense-organ of hearing by inherence. We may also hear the sound-universal present in the particular instances of sound. In hearing the sound-universal the sense-organ of hearing is indirectly related to it. Sound inheres in the sense-organ of hearing (*ākāśa*) and the universal of sound inheres in the sound ; so the sense-organ of hearing is related to the universal of sound by inherence-cum-inherence.

According to Navya-Nyāya we can perceive not merely positive objects but also negative objects like absence of a jar on the floor. Here it is necessary to relate epistemically the sense-organ of vision with the absence of the jar on the floor. First of all the sense-organ of vision is related to the floor by contact and the absence of the jar is the qualifier of the floor. Hence the sense-organ of vision is related to the absence of the jar on the floor by the relation of contact-cum-qualifierness.

(C) *Special perception*

Among systems of Indian philosophy only Navya-Nyāya admits this type of perception. There are three kinds of this type of perception.

(i) The first kind of this type of perception is the perception of all instances of a universal. When we perceive an elephant, we also perceive ordinarily the universal elephantness inhering in the elephant. These are all cases of ordinary perception. But Navya-Nyāya philosophers argue that by perceiving one elephant as

possessing elephantness, we perceive in a special way all instances of elephantness, i.e., all elephants, past, present and future, near and far. When we perceive one elephant, we have perceived all elephants merely as elephants. This is why when we see a second elephant we at once *recognize* it as an elephant. But recognition is not possible if we had not already known the elephant. It is the first time that we are seeing the second elephant. How can we then recognize it as an elephant? According to Navya-Nyāya philosophers this experience of recognition can be explained only if we hold that by perceiving one elephant in the ordinary way we have perceived in a special way all elephants. ✓

This Nyāya theory of perceiving in a special way all instances of universal by perceiving the universal in the ordinary way in one instance of the universal avoids a difficulty of the conceptual theory of universals. According to this theory we perceive a number of elephants, then compare and contrast these perceived particulars and then abstract the qualities common to all of them and then generalize to form the concept of the universal of elephant. A difficulty in this theory of abstract universal is that we shall have to perceive many elephants. As we have not yet got the universal of elephant, it is not clear how we can be sure that we are seeing a second elephant. Without having the universal we cannot possibly recognize a second elephant as an elephant. The Nyāya theory of this kind of special perception explains how we can recognize a second elephant as an elephant. Even when we perceive the first elephant we also perceive the elephant-universal present in the first elephant. But this perception of the universal does not suffice to explain our recognition of the second elephant as an elephant. Hence the need for this special kind of perception. ✓

Even though this is a special kind of perception it is common to all men. It is not a privilege enjoyed only by a fortunate few.

Every perception requires an epistemic relation between the sense-organ and the object perceived. In this kind of special perception of all instances of a universal, it is the ordinary actual cognition of the universal which functions as the epistemic relation. The universal is actually perceived in the instance present here and now, and this universal is present not only in this object but in all its instances. So the actual ordinary perception of the universal functions as the epistemic relation between the sense-organ and all instances of the universal. As this epistemic relation is not of an

ordinary kind, it is regarded as of a special kind (*alaukika*).

This kind of special perception is used in Navya-Nyāya to explain the perception of the invariable concomitance of smoke and fire. No one can see all cases of smoke, or all cases of fire. Then how can one know, as one actually does, that all cases of smoke are related in the appropriate manner with fire? The reply is that by seeing one case of smoke, one ordinarily sees smokeness which inheres in all instances of the smoke-universal. In this special sense, one sees all cases of smoke, which explains the possibility of perceiving the invariable concomitance of smoke with fire. We shall explain later why Navya-Nyāya philosophers cannot admit inductive inference.

(ii) The second kind of special perception is the perception of objects by a sense-organ, although these objects are not the proper objects of perception by the sense-organ.

As an example we may take the visual perception of a piece of sandalwood as fragrant. Fragrance is not an object of visual perception. Yet when we see a piece of sandalwood we see it as fragrant. This is possible only if we had smelt the piece of sandalwood when we saw it before. It is the memory of the fragrance which functions as a very special kind of epistemic relation between the sense-organ of vision and the fragrance. It will not do to say that we see the piece of sandalwood and remember that it is fragrant. Our experience is of visual perception of the piece of sandalwood as fragrant. To explain this experience it is necessary to postulate this kind of perception.

There are five more different cases in which this kind of special perception is used in Navya-Nyāya to explain various types of experience. (a) The first case is of recognition. We saw Devadatta before; when we see him now we recognize him to be that person. The recognition is perception and it takes the form 'This is that Devadatta'. Now in this recognition the memory of Devadatta whom we saw before functions as epistemic relation to produce this perception. (b) According to Nyāya, we can know one cognition of an object in a higher order introspective cognition. The object of this higher order introspective cognition of a cognition has the form 'I know the jar'. When I perceive the jar I am aware only of the jar, but not of my perceiving it. If I have to know my perception I have to perform a higher order introspective act. This introspective act has as its object the first order act. Yet the first order act cannot be cognized in a second order act unless and until the object of the first order act is also cognized.

The second order act cognizes the first order act and also the object of the first order act. This is possible only if we hold that the object of the first order act becomes an object of the second order act. As the second order act is introspection or inner perception it perceives the object of the first order act only in so far as it is cognized in the first order act. Here the epistemic relation between the second order inner perception and the object of the first order act is the first order act of the cognition itself. So in this case also a cognition becomes the epistemic relation between the inner perception and the object of the first order perception. This is a perception of special kind. (c) The third case of this type of epistemic relation is in explaining an illusory perception. When, for example, we mistake a piece of rope for a snake though not present here and now. When we mistake a piece of rope for a snake we do not mistake the piece of rope for an idea or a memory of a real snake we perceive the snake which is not here and now. But how can the sense-organ of vision be related to a snake not here and now? According to Nyāya, the epistemic relation between the sense-organ of vision and the absent snake is through the memory of a snake seen in the past. Here, too, it is a memory which functions as the epistemic relation between the sense-organ of vision and the absent snake. (d) In the case of perception of a negative object, the sense-organ has to be epistemically related to the object. For example, when we perceive that there is no jar on the floor, we have to know the jar before. This memory of the jar seen before becomes the epistemic relation between the sense-organ of vision and the jar. We cannot perceive simply absence, the absence has got to be absence of some thing. Even though the absence is before our eyes, the jar which is absent is not. Yet unless and until we can see the jar we cannot see the absence of the jar. Here, too, the memory of the jar functions as the epistemic relation between the visual sense-organ, and the absent jar. (e) Navya-Nyāya philosophers hold that the meaning of a word may be known in different ways. One way is to identify an object as the meaning of a word based on perception of similarity (*upamiti*). For example, a forester tells a citydweller that a *gavaya* is similar to a cow. When that man goes to a forest and perceives an animal similar to a cow he knows that the meaning of the word 'gavaya' is any animal of this kind. Now the problem is that the person has to *see* the similarity of the *gavaya* which is present and a cow which is absent. How can

one perceive the similarity between a present and an absent thing? According to Nyāya philosophers the perception of the similarity requires perception of the two objects which are similar. As the *gavaya* is present there is no difficulty in explaining how it can be perceived. But how can an absent cow be perceived? It is not ordinary perception, for it is the memory of a cow seen before which functions as the epistemic relation between the visual sense-organ and the absent cow. So this perception of similarity between a present thing and an absent thing is of a special kind.

(iii) The special perception of this kind is not common to all individuals but is the prerogative of yogins. Yogins can 'see' small things like atoms, distant and past and future things which cannot be perceived normally. But perception according to Nyāya requires an epistemic relation between the sense-organ and the object perceived. In the case of yogic perception the epistemic relation is the special cognition in the mind resulting from yogic exercises.

In all these three forms of special perception, the epistemic relation between the sense-organ and the object perceived is very peculiar. In all these three cases it is knowledge of a sort that functions as the epistemic relation. In the first case it is the perception of the universal in ordinary way which functions as the epistemic relation between the sense-organ and all instances of the universal. In the second case it is sometimes memory and sometimes informative knowledge which functions as the epistemic relation. This has been explained above in detail. In the third case it is the knowledge resulting from yogic practices which functions as the epistemic relation between the sense-organ and the object perceived. In emphasizing the instrumentality of sense-organs in all forms of perception, ordinary or special, Nyāya philosophy goes against the yoga theory of Patañjali. According to Nyāya a blind man cannot see anything even by yogic exercises. For seeing the function of the visual sense-organ is essential. Thus a blind yogin cannot see God, he can have other kinds of perception of God.

(D) *False cognition*

Now we explain the difference between a true cognition and a false cognition. For this is necessary to define 'a true cognition'. This may be done by analysing a particular instance. For example, when we cognize a serpent as (a) serpent, this cognition is true, while if we cognize a piece of rope as a serpent this cognition is false. Now when we cognize truly what is objectively a serpent as serpent-ness-pos-

sessing, then this cognition has the object serpent-ness-possessing serpent as its qualificand, and serpent-ness as its qualifier. Thus the cognition has two properties——(i) having-serpent-ness-possessing-serpent-as-its-qualificand, and (ii) having-serpentness-as-its-qualifier. As these two properties belong to the same cognition of a snake as a snake, (ii) is said to be limited by (i). Hence a true cognition has 3 properties——(i), (ii) and, (iii) i.e, (ii) limited by (i). It is (iii) alone which is the defining mark of the true cognition.

In the false cognition of piece of rope as a snake, there are also 3 properties——(a) having-the-piece-of-rope-possessing-the-absence-of-snakeness-as-its-qualificand, (b) having-snakeness-as-its-qualifier, and (c), (b) limited by (a). Of these 3 properties, (c) alone is the defining mark of a false cognition : the property——having-snakeness-as-its-qualifier——limited by the property——having-something-with-absence-of-snakeness-as-its-qualificand.

The technical definitions given in earlier Nyāya are the following.

- D1 A cognition having *that* as its qualifier in a *that*-possessor is true.
- D2 A cognition having *that* as its qualifier in a negation-of-*that*-possessor is false.

By using the relative pronoun 'that' the earlier Nyāya philosophers attempted to give a general definition. The usual practice of earlier philosophers was to eliminate nouns of particular definitional sentences by relative pronouns to achieve universality. Thus in Gaṅgeśa's accepted definition of pervasion, there are two pairs of relative pronouns, two 'that-which's; in such a case it is difficult to fix the reference of which 'which' to which 'that'. Gaṅgeśa's definition may be translated as follows :

- D3 Pervasion is the co-presence of *that* with *that which* is not limited by the limitor of counterpositiveness of any constant absence co-present with *which* and excluding its counter positive.

It will be easier to fix the reference of relative pronouns by using different variables thus :

- D3* Pervasion is the co-presence of x with y where x is not limited by the limitor of counterpositiveness of any absence (z) co-present with y and excluding its (z's) counterpositive.

9. PŪVA-MĪMĀSĀ THEORY OF COGNITION

Pūrva-Mīmāṃsā is primarily concerned with the interpretation of Vedic sentences. This school has developed an elaborate system of rules for the correct interpretation of Vedic sentences. This system is, however, extended to cover all sentences, Vedic and non-Vedic.

According to this school, Vedic sentences are grammatically of two kinds : (i) Ought-sentences. The ought-sentences are either affirmative or negative. Affirmative ought-sentences are injunctions to perform certain actions; negative ought-sentences are prohibitions. These two types of ought-sentences are primarily significant, i.e., they have meaning in the strict sense. (ii) Other sentences are declatory, in the indicative mood. They do not have meaning, they are regarded as significant only as being subservient to the ought-sentences (*arthavāda*). The point is that only sentences stating an action to be performed are significant. Declatory sentences state facts which cannot be brought into being by action, but are already there, are accomplished. So sentences of this type in isolation do not have significance in the strict sense.

There is a fundamental difference in the cognitions produced by the different kinds of sentences. Only ought-sentences, i.e., injunctions and prohibitions, produce qualificative cognition of a relation between a qualificand and a qualifier. Sentences of the other type do not produce qualificative cognition. They produce a cognition of a qualificand and a qualifier without any relation being cognized between them. There is only an absence of cognition of the difference between the cognized qualificand and qualifier. The difference between them being not cognized, the qualificand and the qualifier constitute the so-called qualificative cognition.

This Pūrva-Mīmāṃsā theory of cognition of sentence-meaning is generalized to cover all cognitions. No cognitions, perceptual, inferential, analogical, etc., which are cognitions of accomplished facts, are qualificative cognitions. Only the qualificand and the qualifier are cognized at the same time, and their difference is not cognized. Now in perception, the qualificand and the qualifier have to be cognized simultaneously for the non-cognition of their difference to be possible; so, no prior cognition of the qualifier is necessary to explain this kind of qualificative cognition.

The same explanation holds good for the so-called illusory perceptions. When a person perceives what is really a piece of tin as a piece of silver, he cognizes 'this is a piece of silver'. *This* is perceived

correctly, and the piece of silver is remembered correctly, there is no error either in the perception or in the memory. That the perception is illusory is based on the assumption that in the perception a relation between the this of perception and the remembered piece of silver is cognized—a relation which does not really hold between them. But this assumption is not justified. In illusory perception there is no cognition of any relation between the this (the qualificand) and the piece of silver (the qualifier), they are simply not cognized as different. The point is that as even in veridical perception there is no cognition of any relation, there is no need to assume such a cognition in the case of illusory perception. Thus no perception is illusory, for in illusion the cognitive process is similar to that in veridical perception; the only difference between the two is that in illusion there is a remembered object (the qualifier) while in veridical perception both the qualificand and the qualifier are simultaneously present in perception.

10. ANALYSIS OF RECOGNITION

Recognition is cognition of the form 'This is that Devadatta'. One has cognized Devadatta before, and recognizes him now. The question now is to explain the causal factors involved in recognition. First, it is not memory, for it is an immediate cognition. Yet memory must function as a factor in the production of cognition. The opponent of Gaṅgeśa argues that it is not memory, but unconscious memory trace, (*saṃskāra*) which, together with sense organs produces recognition. The point in this explanation is that a prior cognition of 'that-ness' is not necessary, for it is an unconscious trace, not cognition which produces recognition which is a qualificative cognition. Gaṅgeśa is arguing that for every qualificative cognition a prior cognition of the qualifier is causally necessary. But if what the opponent says is true, then no prior cognition of that-ness is necessary, which thus refutes Gaṅgeśa's position.

Against this criticism of Gaṅgeśa, we may point out that an unconscious trace cannot produce recognition without itself being activated to produce memory. So it is memory of that-ness which is a cognition that is causally necessary to produce recognition. But memory does not function as memory in this causal context. It functions as the epistemic relation with the past object (That-ness) to produce perceptual cognition. We have already explained that Nyāya philosophers accept some special kinds of sense-object relation. One is that a cognition (specially, memory cognition), functions as the

sense object contact where the object is past, or distant. This Nyāya theory of special kind of sense-object relation explains our felt experience that recognition although involving memory is immediate cognition.

The Western theories that all perception, not merely recognition, is presentative-representative are not accepted by Nyāya philosophers. Their argument is that being presentative and being representative are opposite properties. According to Nyāya being presentative (*pratyakṣatva*) is a universal. It will not do to say that a cognitive state is in some part presentative and in other parts representative. For, being a perception is a property of pervasive occurrence, as it is a universal. For example, humanity is a universal, and if it is present in a particular, then the whole of the particular is a man; his limbs, his hair, his nails, are all human. So if a cognition is presentative, then all parts of it are presentative. It cannot be that a perception is presentative in some parts and representative in other parts.

It may be argued that when we see a jar, for example, we have visual sensations which are presentative which have to be interpreted by memory which is representative. Now according to Nyāya there is indeterminate perception of jar-ness, which produces (is a cause of) the determinate perception of a jar. Even if memory is involved, as in recognition, it is involved only causally. This does not make the effect, the state of recognition, presentative-representative; it is wholly presentative.

11. NAVYA-NYĀYA THEORY OF TRUE COGNITION

A true cognition is a cognition having *that* as its qualifier of a *that*-possessor. There must be in the object something possessing something, i.e., something related by an occurrence-exacting relation to something. For example, if *a* possesses *b*, then *a* is a *b*-possessor. A cognition of *a*, the qualificand, must have *b* as its qualifier. We cannot say simply by observing the structure of the object of a cognition whether the cognition is true or not. For example, the cognition, this is a snake, may be true or false. It will be true if the cognition is of a snake, false otherwise.

Now a cognition to be true, must be informative cognition. A recollective cognition like memory is true or false according as the original experience (informative cognition) is true or false. So there is no new criterion of truth of a recollective cognition.

Because a true cognition is an informative cognition, it cannot be a doubt. A doubt cannot be true; it is always classified as untrue. Thus

true cognition is really a true belief when the belief is an episode. Nyāya definition of the true cognition, is, therefore, very different from 'knowledge' in the usual classical sense of justified true belief. The question of justification does not arise in the case of true cognition. This may be explained by what is called inference based on a false consideration. In such cases the conclusion of the inference is a true cognition, but the cognition of premises is false. For example, if one infers that the hill possesses fire, for it possesses dust, the inference may be stated thus :

- (1) The hill has a column of dust.
- (2) Dust is pervaded by fire.
- (3) The hill has a column of dust pervaded by fire (consideration).
- (4) Therefore, the hill possesses fire.

Now it may so happen that the hill does have fire; so the conclusion, in such a case, is true, although the cognition of pervasion (2) and of consideration (3) is false.

A second case of this type of true conclusion caused by a false consideration is the following.

- (5) The hill has the property of being a kitchen.
- (6) The property of being a kitchen is pervaded by fire.
- (7) The hill has the property of being a kitchen pervaded by fire.
- (8) Therefore the hill has fire.

If the hill happens to have fire, the cognition of the conclusion is true, yet the cognition of the probans in the locus of inference, (5) is false i.e., of the property of being a kitchen is not present in the hill. It is present only in a kitchen. So (7) is also a false cognition. Yet the conclusion is true.

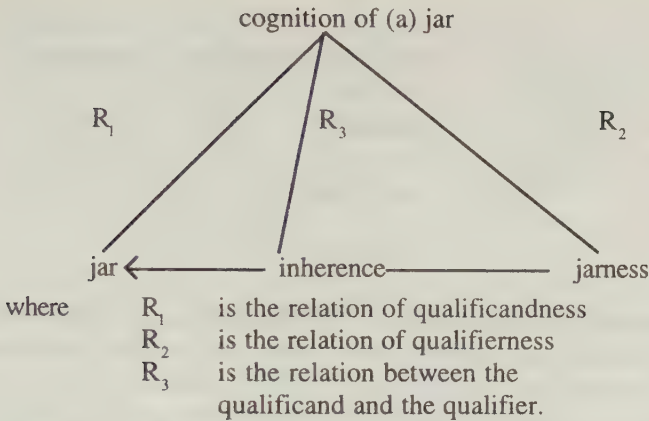
In Western philosophy a true belief to count as knowledge is justified by evidence which cannot be false. This true belief, if deduced from the evidence, is justified by the evidence. But in this type of inference, according to Nyāya the conclusion just happens to be true, although the evidence from which it is deduced is false. Thus it cannot be said that the cognition of the premises or of the consideration justifies the cognition of conclusion. The cognition of the premises causally produces the cognition of the conclusion. So true cognition in Nyāya is not knowledge of Western philosophy.

It is clear from the definition of true cognition that only a deter-

minate cognition can be true. For only a determinate cognition has a qualifier. Indeterminate cognition is of an isolated item, which is neither a qualificand nor a qualifier. For, the very definition of a qualificand or a qualifier of a cognition requires a relation to be cognized in it. The first term of the relation cognized is the qualificand and the second term of the relation cognized is the qualifier of the cognition. Thus when we express in language a cognition, "This is (a) cow", it is not clear which relation has been cognized. If the relation cognized is identity between this, (the object present here and now), and (the particular) cow, then cow is the qualifier of the cognition. But if the relation cognized is inherence-converse, then cowness is the qualifier, for cowness inheres in this, so that this is (a) cow. Thus from the expression of a cognition in ordinary language (Sanskrit) the relation cognized cannot be uniquely determined. So a technical language becomes necessary in which the cognized structure is explicitly stated.

In indeterminate perception, the sense-organs function as the instrumental causes just as in all other perceptions. But only ordinary sense-organ-object relations can be epistemic relations in indeterminate cognition. We have explained that Nyāya philosophers admit special types of epistemic relations like a cognition (of all instances of a universal, of other objects, etc.), but in indeterminate perception the epistemic relations are only ordinary relations, never the special relations. Thus when we see all jars in a special sense, by seeing a particular jar in the ordinary way, it is the perceptual cognition of jariness which functions as the epistemic relation between all jars, past, present, future, near and far, so that all jars are perceived in this special way. But all jars are perceived only under the mode of jariness, not under the mode of their special features, like the particular colours, shapes, etc. So this special kind of perception is determinate perception involving a mode (a qualifier). An indeterminate cognition can only be perception where the epistemic relations of the sense-organs with the object are necessarily ordinary relations (*laukika sannikarṣa*).

To be an object of a cognition i.e. objectivity, is a special type of relation of the cognition (as the second term) to the object (as the first term of the relation). In determinate cognition there are three relations of the one cognition with the three elements of the object—



Thus R_1 , R_2 , R_3 are relations in which the cognition is related to the three elements in the objective structure. But there are also the converse relations of the three elements to the cognition—these are converses of R_1 , R_2 , and R_3 , i.e., $\bar{R}_1$, $\bar{R}_2$, $\bar{R}_3$. In explaining different types of cognition, it is often necessary to use these converse relations.

In indeterminate perception of an object, no relational structure is cognized; only a single item becomes the object. This relation of cognition to the object is said to be a fourth type of relation, R_4 , different from the three relations involved in the determinate cognition; so also its converse, $\bar{R}_4$.

12. DIFFERENT FORMS OF DETERMINATE COGNITION

The simplest form of determinate cognition is of a structure with a qualificand, a qualifier and a relation. This type of cognition is expressed by a single word like '(a) jar'. A diagram may help to explain this feature of the simplest form of determinate cognition.

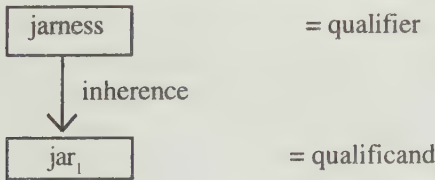


Fig. 1

The next form of determinate perception is explained in the following diagram.

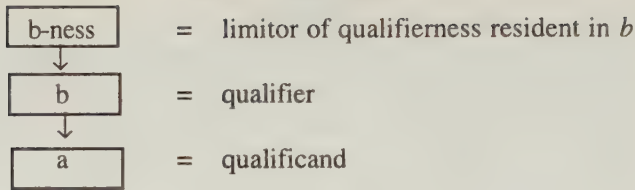


Fig.2

As a concrete example, we may cite the cognition of the jar-possessor. The jar-possessor is the ground which is not mentioned, but is, nonetheless, the qualificand of the cognition. The jar is the qualifier, but it can be cognized only under the mode of jarness, which becomes the limiter of the qualificierness resident in the jar. The next form of determinate perception is of the form :

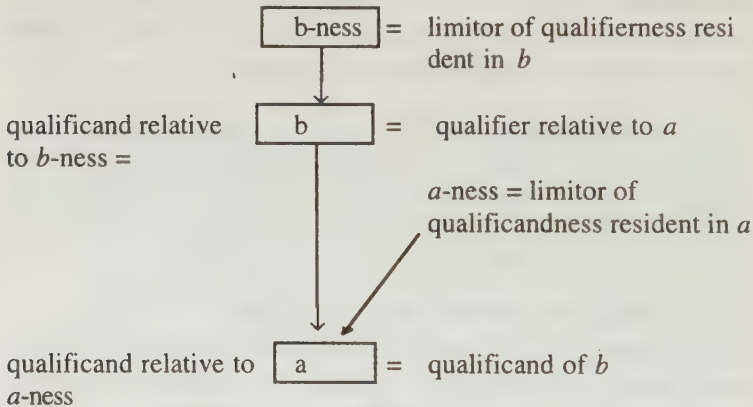


Fig.3

A concrete example of a cognition is of (a) red jar. To cognize a jar as the qualificand, we have to cognize jarness as the limiter of qualificandness resident in the jar. So also to cognize red colour, we have to cognize the universal of red colour present in all and only instances of red colour. This universal (red-ness), is the limiter of the qualificierness resident in the red colour which is the qualifier in the cognition. Thus the colour, red, is at once a qualificand (relative to redness), and a qualifier (relative to the jar).

The fourth form of cognition is conjunctive cognition which has a collection as its object (*samūhālambana jñāna*). The difficulty is that

a collection of object is not an ontological entity over and above the individual objects collected. So how can there be any cognition of a collection? The Nyāya answer is that in this type of cognition there are two or more principal qualificands. A principal qualificand of a cognition is a qualificand which is not also a qualifier of the cognition. In Fig. 3. for example, *b* is not a principal qualificand, relative to *b*-ness (the limiter of qualificianness resident in *b*), *b* is a qualificand, no doubt, but *b* is also a qualifier of *a* in the same cognition, (relative to *a*). But *a* is the principal qualificand of the cognition, for *a* is not a qualifier in the cognition. In the cognition of a collection, there are two or more principal qualificands.

cognition of '(the) jar and (the) ground'

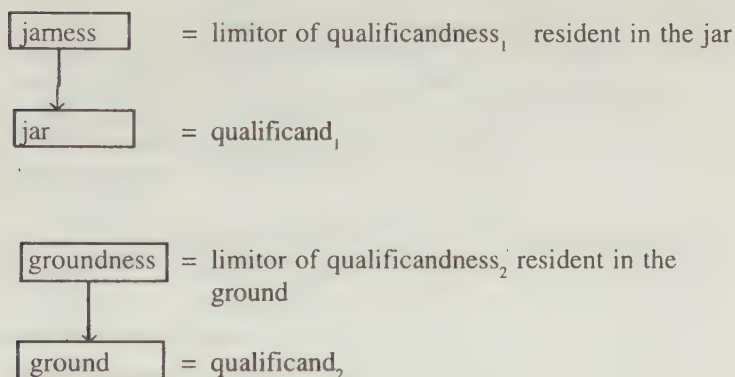


Fig. 4

In this cognition both the jar and the ground are principal qualificands, for they are not qualifiers in that cognition. Thus although Nyāya does not admit any ontological reality of a collection over and above the items collected, still it can explain the cognition of a collection as different from cognition of the items separately. (For explanation of the cognition of the jar see Fig. 1).

The next type of cognition is the cognition of one qualificand having two or more qualifiers.

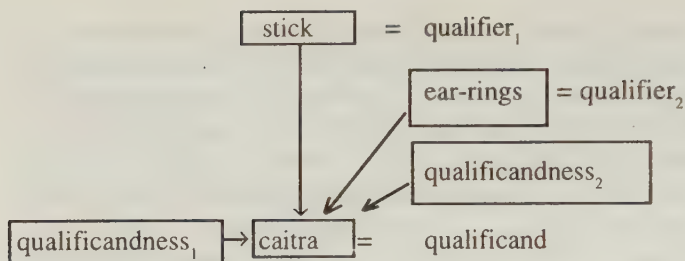


Fig. 5

The cognition here is : Caitra possesses both a stick and ear-rings. The point here is that although Caitra is the qualificand of both the stick and ear-rings, still, according to some Nyāya philosophers it has two qualificand-nesses—one qualificandness determined by (qualifierness resident in) the stick and another qualificandness determined by the (qualifierness resident in) ear-rings. This view, however, is not accepted generally. So, according to Navya-Nyāya philosophers, in this type of cognition where there are two or more qualifiernesses, they determine only one qualificandness.

Now this type of cognition may be of two contradictory qualifiers in the same qualificand. For example, one may cognize (falsely, of course), that the lake possesses both fire and absence of fire. Here the two qualifiers, fire and absence of fire are contradictory. This type of cognition has to be differentiated from the doubt (which is also a false cognition) which is of the form whether the lake possesses either fire or absence of fire. Here also the one qualificand, (the lake) has two qualifiers fire and absence of fire. Yet this doubt as a form of cognition is different from the earlier cognition of two contradictory qualifiers. In both cognitions the lake is qualified by fire and absence of fire. How are, then, the two cognitions—of contradictory qualifiers conjunctively or disjunctively—are to be differentiated? How is conjunctive cognition of two contradictory qualifiers to be distinguished from doubt?

The Navya-Nyāya answer is that in the case of the cognition of conjunction of two contradictory qualifiers, the two qualifierness-converses are not related by limitor-limited relation. In doubt, the two qualifierness-converses are related as limitor and limited. This explains the differences between the two types of false cognitions. This will be clear from the following two diagrams :

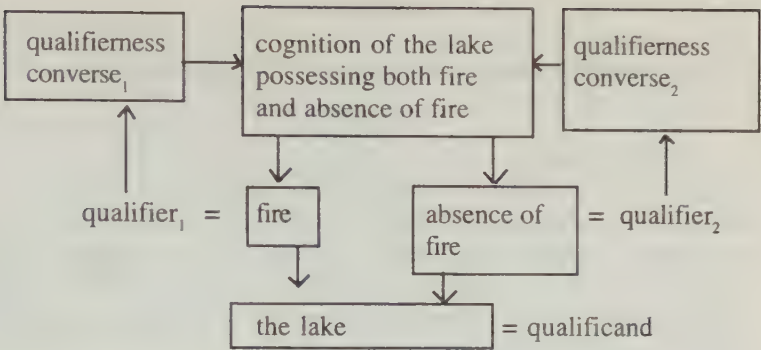


Fig. 6

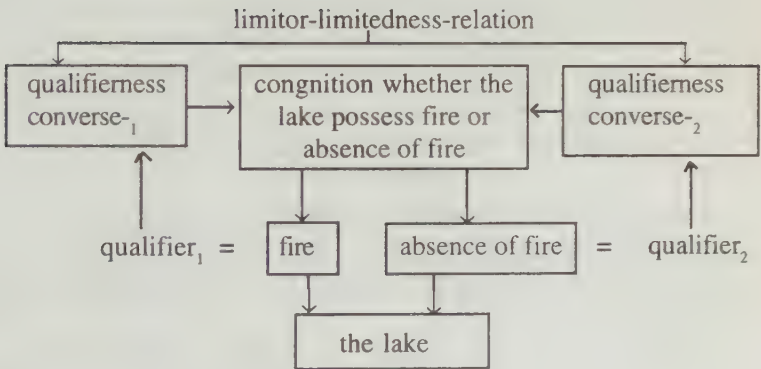


Fig. 7

SOME BASIC CONCEPTS OF NAVYA-NYĀYA

I. RELATION

In Navya-Nyāya ontology a relation is not a special type of reality. Only a special relation, inherence, is admitted as a special type of reality. A relation is that which produces the cognition of a qualified entity. Jagadīśa has defined a relation as the object of a qualificative cognition which is different from the qualificand and the qualifier of the qualificative cognition.¹ In the diagram given below this point is explained.

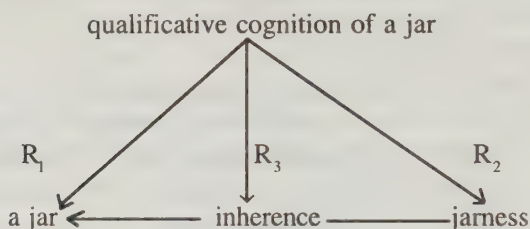


Diagram-1

A relation is that to which the cognition is related by R_3 . Any object belonging to any category of reality may be related to a qualificative cognition by R_3 . So any object may function as a relation in a cognition.

Relations may be either direct relations or a chain. In direct relation the first term and the second term are related by a single object. In a chain relation, however, there is more than one object which functions as a relation between the first term and the second term. These different objects functioning as a relation are themselves related to each other as qualifier and qualificand. The object which is the qualificand in the chain relation cannot be the whole relation between the first term and the second term of the relation. This object, qualified by another object which becomes its qualifier, relates the second term with the first term, in symbols $a R/S b$ where R/S is the relative product of R and S . In this relative product R is the qualifier, S is the qualificand. ' aR/Sb ' is defined in Western logic

¹ "Viśeṣya-viśeṣaṇatv-ānya-viśiṣṭa-dhī-viśayatvameva sambandhatvam iti bhāvah"—Siddhantalakṣaṇa-Jāgadīśi, p. 236.

as ' $(\exists z)(aRz.zSb)$ ', where 'z' refers to the object which has *b* as its second term of *S*, and which has *a* as the first term of *R*. According to Navya-Nyāya, in such a case *R* is the qualifier and *S* is the qualificand of the chain relation *R/S*.

2. THE CONCEPT OF CAUSE

An object is produced by many causes. The first thing to be noted is that according to Navya-Nyāya philosophers neither the effect nor the cause is always an event. When an object is produced, it is the object which is the effect. The many causes which co-operate to produce the effect are also objects. Navya-Nyāya philosophers single out a particular cause as being the most important cause of the effect. This most important cause is the instrument or the instrumental cause of the effect. This concept of instrument is the most important of the causes of an effect which does not have any corresponding Western concept. Grammatically the word standing for the instrument is in the third declension. This means that the instrument is that by means of which the effect is produced. Often the prepositions 'with' or 'by' are used to indicate the word for the instrument. For example, when one cuts a tree with an axe, the axe is the instrument of cutting.

The importance of the concept in Navya-Nyāya is due to its use in various contexts. For example, in epistemology perception is defined as that cognition the instrument of which is a sense-organ. We see *with* our eyes, hence eyes are the instrument of visual perception. We hear *with* our ears, hence ears are the instrument of auditory perception. So also with other perceptions.

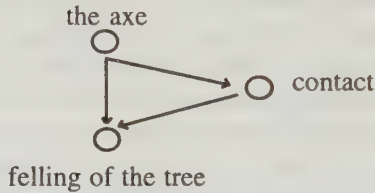
Navya-Nyāya philosophers determine the instrument of indirect cognition, too. An indirect cognition is defined as the cognition produced *by* another cognition; hence this cognition is the instrument of indirect cognition. For example, cognition of a conclusion of inference is produced by a cognition of invariable concomitance between two objects. When we infer the conclusion 'the hill is fiery' our cognition is produced by our earlier cognition (memory) that whatever has smoke has fire. The memory of this invariable concomitance between smoke and fire, (pervasion of smoke by fire) is what produces the cognition of the inferential conclusion in the same way as the sense organs produce perception. The cognition of the pervasion plays the same role in the production of the cognition of the conclusion as the sense organs play in the production of perception.

Navya-Nyāya uses the concept of instrument in various contexts some of which we shall notice in our discussion.

Navya-Nyāya philosophers supplement the grammatical criterion of instrument by a more technical definition. This technical definition of 'instrument' may be stated in the following way :

- DF. 1. An instrument is the most important cause which has operation.²
 DF. 2. An operation is that which being an effect of the instrument is at the same time a cause of another effect of the instrument.³

This may be explained by the stock example of a woodcutter felling a tree with an axe. Here the axe is the instrument of felling the tree. Contact of the axe with the tree is the operation of the axe. The contact of the axe with the tree is produced by the axe; and the contact produces the felling of the tree which is produced also by the axe itself. This may be explained by the following diagram :



where contact of the axe with the tree is produced by the axe, and produces the felling of the tree which is also produced by the axe. So the contact of the axe with the tree is the operation of the axe, which is the instrument. The instrument produces its effect through its operation.

There is another causal concept which is used very frequently in Navya-Nyāya, but its importance is not recognized in Western philosophy. We have already stated that many causes have to co-operate in producing an effect. Some of these causes are positive objects while others are negative objects, i.e., absence of objects. For example, to light a fire fuel is necessary, so also is a match-stick. These are positive objects; their presence is necessary for the production of the effect, the fire. But certain negative objects are also necessary in the sense that the absence of some objects is necessary for the production of the object. Thus for lighting the fire fuel is necessary; but it is also necessary that the fuel must not be wet.

² *Vyāpāravād asādhāraṇam kāraṇam karaṇam, Nk (gha).*

³ *Tajjanyatve sati tajjanya-janako hi vyāpārah.*

Wetness of the fuel is a negative condition of the fire because its absence is necessary. Objects whose absence is necessary for the production of an effect will act as impediment if they are present. According to Navya-Nyāya objects whose absence is necessary for the production of an effect will impede, prevent, or block the effect if they are present.

Navya-Nyāya also uses the concept of an excitor (*uttejaka*) which overcomes the impediments in producing the effect. Thus if an impediment is present the effect is not produced but if an excitor is present then the effect of the impediment is cancelled and the effect is produced. For example, fire burns if one touches it. But if one holds a moon-stone in one's hand then the fire will not burn even when one touches it. The moon-stone acts as an impediment to burning by fire. But if one holds a sun-stone the fire will burn even in the presence of the moon-stone. That is, the sun-stone counteracts, cancels, the action of the moon-stone.

In this way Navya-Nyāya philosophers refute the postulation of power as a metaphysical reality to explain these facts. Mīmāṃsā philosophers argue that fire has the capacity to burn and this capacity is made ineffective by the presence of the moon-stone, and becomes effective again when a sun-stone is introduced. Navya-Nyāya philosophers reject the Mīmāṃsā theory as involving heaviness. Navya-Nyāya philosophers explain these facts simply in terms of causation. Some causes are negative; their presence will prevent the production of the effect. So also the positive causes whose presence is necessary will prevent the effect by being absent. The concept of the excitor is also explained causally.

Navya-Nyāya philosophers use this causal concept of impediment, preventor, (*pratibandhaka*) in epistemology to explain various facts. For example, a fallacy or a defective probans is defined as that object the true cognition of which would block the fallacious inference.

It is interesting to note that many contemporary philosophers use concepts like blocking or preventing⁴ without clarifying their meaning. Ross also uses a concept of evidence defeating force which can be explained in terms of the Navya-Nyāya concept of impediment.

4 Gilbert Harman, *Thought*, p. 123; M. Ginsberg, *Mind and Belief*, p. 56. for a detailed discussion of this point see my 'Epistemology of Testimony and Authority' in *Knowing from Words*, ed. B. K. Matilal and Arindam Chakrabarti.

3. THEORY OF CAUSATION IN NAVYA-NYĀYA

The Nyāya theory of causation is that for the production of any effect whatsoever, many types of causes must co-operate. One type of causes is general causes which are necessary for the production of any effect. These are, (i) God's will, (ii) God's knowledge, (iii) time, (iv) the stock of merit and demerit of individual men. As every effect is a particular effect, there must be also a different type of causes, namely, special causes, which account for the special feature of every particular effect. That is, general causes are necessary, but not sufficient to produce any particular effect. Thus to produce burning, fire is necessary over and above the general causes.

As God's will is necessary for the production of any effect whatsoever, all causality involves divine will. Thus the so called natural phenomena like earth-quake, flood etc., are also caused by will. So all causality involves will-causality, for divine will is involved in every causation. The other point to be noted is that for the production of the universe, the totality of men's *adṛṣṭa* is necessary as a cause. The world is produced so that man may enjoy or suffer according to their merit and demerit accumulated through countless births. In the time of dissolution of the world, the *adṛṣṭas* of men remain in their souls which are eternal and cannot be destroyed. So when the next cycle of creation begins, the *adṛṣṭa* of men becomes a cause of the new creation.

There is also the problem of plurality of causes. One effect, for example, fire, may be produced by different causes on different occasions. Fire may be produced at different times from dry grass, wood, and other kinds of fuels, so also by different types of means, light, lens, flint etc. Now the theory that one effect may be produced by different causes on different occasions is not accepted in Nyāya and Mīmāṃsā philosophies. The apparently many causes which produce the same effect on different occasions are not really different. They all have the same kind of power (*śakti*) to produce the same effect. This solution is known in Western philosophy as generalization of the cause. Thus one generalized cause produces the same effect. So there is no plurality of causes. The Nyāya philosophers proceed in a different way to solve this problem. They point out that when different causes seem to produce the same effect on different occasions, there is really a plurality of effects corresponding to the plurality of causes. Thus fire made from dry grass is different from fire made from wood, and so on. This solution is known as specifying

the effect in Western philosophy.

The reason why the doctrine of plurality of causes is rejected by Nyāya is that there cannot be any uniform causal law if the doctrine is accepted. We cannot say that dried grass is necessary for fire, for fire may be produced from wood. For any theory, philosophical or scientific, it is necessary to have a general causal law. In Western Inductive logic the doctrine of plurality of causes is rejected in the interest of science. This doctrine is obviously detrimental to philosophical theory also. So this doctrine, though supported by common sense, is rejected in science and philosophy equally.

Samavāyāi, *a-samavāyī* and *nimitta kāraṇa*

The question arises why 3 different kinds of causes have to be admitted. The reduction in number may be made in various ways.

(i) The first way is to suggest that *a-samavāyī kāraṇa* and *nimitta kāraṇa* may be identified. This suggestion cannot be accepted for the following reason. When a substance, say, a piece of cloth is produced, the conjunction of the individual threads is the *a-samavāyī kāraṇa* of the piece of cloth and the weaver is *nimitta kāraṇa*. Now even if the weaver dies the piece of cloth continues to exist. But Nyāya accepts the principle that if *a-samavāyī kāraṇa* is destroyed, so is the substance which is its effect. So if the threads are separated destroying their contact, the piece of cloth is destroyed. The continued existence of the separate threads cannot cause the cloth to continue to exist. So *a-samavāyī kāraṇa* and *nimitta kāraṇa* cannot be identified.

(ii) Then it may be suggested that *a-samavāyī kāraṇa* may be reduced to *samavāyī kāraṇa*. Then there will be 2 types of causes, *samavāyī kāraṇa* and *nimitta kāraṇa*. But then the question arises why a created substance goes out of existence. We have already seen that the destruction of *nimitta kāraṇa* cannot explain the destruction of the substance which is its effect. So it will have to be said that the destruction of the *samavāyī kāraṇa* produces the destruction of the created substance. If the threads are destroyed, then the piece of cloth which inheres in the threads will also be destroyed. Thus the destruction of the *samavāyī kāraṇa* is the cause of the destruction of the substance.

But this theory cannot be accepted for it does not apply to all cases. For example, a dyad consists of 2 atoms which are its *samavāyī kāraṇa*, for the dyad, a whole, inheres in its parts, the two atoms. But as atoms are eternal, they cannot be destroyed. So a dyad cannot be destroyed. This is contrary to fact, for a dyad is destroyed at the time

of dissolution when the atoms which are eternal continue to exist. So destruction of the *samavāyi kārāṇa* in this case is not possible.

(iii) Then it may be suggested that *samavāyi kārāṇa* may be reduced to *a-samavāyi kārāṇa*. But this is not possible, for the very definition of *a-samavāyi kārāṇa* is in terms of *samavāyi kārāṇa*. If this definition is rejected, even then *a-samavāyi kārāṇa* cannot exist independently. For example, the contact of the threads cannot exist apart from the threads. So without the *samavāyi kārāṇa* the *a-samavāyi kārāṇa* cannot even exist.

So three kinds of causes have to be admitted.

4. SINGULAR AND GENERAL CAUSATION

Ordinarily we establish a general law of causation, e.g., fire is the cause of burning. But the problem is to explain how this general law can be established. In Mill's methods of induction, for example, we have to observe particular instances. Now the problem is why we do not establish causal connection between particulars as the evidence is always of particular instances. According to Nyāya, we can, and do, establish causal connections between particulars, and we also establish general causal laws. The problem is to explain the relation between cognitions of these two types of causal relations.

According to Nyāya, a causal connection can be established by perception. We perceive certain objects going with certain other objects. We have to observe agreement in presence and also agreement in absence of these objects in order to establish a causal connection. Now the Navya-Nyāya principles which Gaṅgeśa has formulated is : The causal connection between particulars is also the general causal connection if, of course, there is no impediment to cognize the general law.

It may be argued here, that unless the general causal connection is cognized, one cannot cognize the causal connection between particulars. Unless one knows that generally fire is caused by fuel, one cannot cognize that this fire is caused by this fuel.

In contemporary Western philosophy various problems concerning causal connections of particulars have been raised. Davidson, for example, has raised the question of the logical form of singular causal statements. He shows that 'causes' cannot be regarded in typical cases as a sentential connective, and, therefore, not as a truth-functional connective, i.e., neither as a material implication or as something more than a material implication. A singular causal state-

ment asserts the existence of two particular events related by the causal relation which is to be symbolized by a dyadic predicate.

Then, he raises the question whether singular causal statements are 'backed' by causal laws. The problem here is whether we can infer (deduce) the singular causal statement from the law and the existence of two events. Davidson concludes that in the great majority of the cases, singular causal statements are not backed by a causal law. But a causal law is implied by a singular causal statement. "Our justification for accepting a singular causal statement is that we have reason to believe an appropriate causal law exists, though we do not know what it is".⁵

In Indian philosophy the problem of the relation between singular causal statements and causal law is treated in a different way. The relation is not between sentences but cognitions which, of course, have to be expressed in sentences. Yet the problem is to find out a relation between cognitions, not sentences. Now, according to Prābhākara Mīmāṃsā a causal connection between particular objects (not events) is to be inferred from the cognition of a general causal law. That is, the general law has got to be known first. The argument may be explained by an example. When a particular pot is produced, say, the potter's father who does nothing to produce the pot, sits throughout. Now if the definition of causes involves an invariable antecedent, in the case of the production of the particular jar, the potter's father is 'invariably' present, being present throughout. So the question arises whether the potter's father would be regarded as a cause of the particular jar. The usual procedure to eliminate irrelevant (*anyathāsiddha*) factors is to consider other cases of production of (other) jars. It is found that the potter's father is not always present in all these cases. Thus to understand part of the very meaning of 'cause' as an 'invariable antecedent' it is necessary to consider other cases of particular causation. But when one does that, one does not establish a causal connection between particular objects, but establishes a causal law. Thus, in order to understand what 'cause' means in a particular case, it is necessary to establish a causal law. And, *then*, one can infer the causal connection between particular objects, from the causal law and existence of the particular objects satisfying the law. So the Prābhākara Mīmāṃsakas hold that if in the general case an object is causally irrelevant, then there is no reason to hold that

⁵ 'Causal relations' in *Essays in Actions and Events*, p. 160.

in the case of particular objects, the irrelevant object becomes causally necessary. Thus, according to Prabhākara, the cognition of the general law is a cause of the cognition of actual connections between particulars. As there cannot be any effect without a cause, so there cannot be cognition of a causal connection between particulars (the effect) without a cognition of the universal law (the cause).

But Nyāya philosophers refute this contention. They point out that causal connection between particular objects may be cognized before a causal law is cognized. For example, a person who has not cognized the general causal law of sticks and jars, can cognize a particular causal connection between this stick and this jar (In constructing an earthen jar, the potter moves the wheel by a stick; hence the stick is a cause of the jar by moving the wheel). Even though one cannot determine whether the potter's father is a cause of the particular jar without considering other cases, still no such consideration is necessary for cognizing the causal connection between the particular stick and the particular jar.

The Prābhākara Mīmāṃsakas, then, modify their position. They argue that although it is not necessary to cognize the causal law before cognizing a particular causal connection, still the particular causal connection and the general causal law are cognized simultaneously. For the conditions which produce the cognition of the particular causal connection are the same conditions which produce the cognition of the general causal law. As the conditions are the same in both the cases, the cognitions will be produced simultaneously. As a matter of fact we can go further. The cognition of the particular causal connection *is* also the cognition of the general law. There are not two cognitions, one and the same cognition is of two types of connections which are its objects. The argument for this modified theory is this. When one ascertains pervasion by observing a single instance of co-presence of the pervader and the pervaded, one has the cognition of a special pervasion between, say, a particular instance of fire and a particular instance of smoke. But this cognition is also of the general pervasion between smoke in general and fire in general. If this is not admitted, then it cannot be explained how one can have a cognition of the general pervasion by observing only one instance of co-presence of smoke and fire which are necessarily a particular instance of smoke and a particular instance of fire.

Now the Nyāya philosophers reject this argument also. They point

out that there cannot be a general law that every cognition of a relation between particulars is also a cognition of the general relation. The law is that if one perceives a particular instance, one also perceives the universal of which the particular is an instance. Hence a perception of particulars is also a perception of the universal inhering in the particulars. This, therefore, explains how when one perceives one instance of smoke and one instance of fire going together one cognizes the general relation of pervasion between smoke and fire. But this law does not hold good for inference. When one infers a particular case, one does not cognize a universal in the same inference. The inference of a particular is not an inference of the general case. Hence the law is that when a particular and a universal property are present simultaneously, only then a cognition of the particular is also the cognition of the universal; in other cases, as in inference, where the particular and the universal are not presented simultaneously, a cognition of the particular is *not* a cognition of the universal.

The Prābhākara Mīmāṃsakas modify their position further. They now assert that from a cognition of connection of particulars, one may *infer* the general connection. This is exactly the opposite of what they originally proposed. They began with the assertion that it is the general law which has to be cognized first in order to cognize a particular connection. Now they argue that a particular connection is cognized first, and the general law is, then, inferred from it.

Now the Nyāya philosophers refute even this modified claim. They point out that inference of the general law from a cognition of a connection of particulars is not automatic, but is determined by the purpose of the person concerned. If the person is not interested in the inference, he will not have the cognition of the general law. So there cannot be a universal rule that whenever one has a cognition of a connection of particulars, one then infers the general causal law.

Thus when Gaṅgeśa formulates the law that when one cognizes a causal connection between particulars, then one cognizes a general causal law, if there is no impediment, what he means is that when the particular and the universal are co-present in a locus, then perception of the particular is also perception of the universal. But in other cases, the law does not hold, because there is impediment, i.e., it runs counter to experience.

Thus this Nyāya theory is very different from Davidson's solution

that every singular causal statement is backed by a law, although we may not know what that particular law is.

5. TECHNIQUE OF EXPRESSING UNIVERSALITY

In Western logic universal laws are formulated by means of variables. These variables are signs bound by some operations. They also act as place-holders for names of their values. Because of the convention that the same name has to be written at all places where a variable occurs (within the scope of one quantifier, or in the same formula, if it occurs freely), the variables perform the function of relative pronouns.

Although variables have been used in Indian Algebra for a long time, they have not been used in Nyāya, or in any philosophical system in India. In Algebra before the introduction of variables, the pronouns *yāvat*—*tāvat* were used. In Nyāya, a very popular method is similar to this practice. It used relative pronouns *yat*—*tat*, (that— which), *sva* (its, or one's own) etc.

(i) This method has the disadvantage of not being able to show the pattern of cross-references—it is not clear which 'that' has to go with which 'which' if in the sentence there are two or more 'that's' and 'which's'.

(ii) Though this technique of using relative pronouns is widely used in formulating universally valid laws by earlier Nyāya philosophers yet Raghunātha reports that many logicians find fault with it. The controversy between the earlier and the later logicians centres round the interpretation of the relative pronouns. The earlier logicians hold that these pronouns stand for any and every object, hence sentences containing them are universal. The later logicians point out that although pronouns like 'that' can stand for anything, yet they cannot stand for everything simultaneously.⁶ For example, in the expressions 'the book that I purchased....' 'the pen *that* I purchased...', etc., the 'that' in the first stands for the book, while in the second 'that' stands for the pen. These logicians argue that the meaning of relative pronouns like 'that', etc., involves reference to the particular object one has in mind when he uses these pronouns. This means that the very meaning of the 'that' in the first expression involves references to the book, whereas that of the 'that' in the second expression involves reference to the pen. But if the very meaning of 'that'

⁶ "Yat-tad-arthayor ananugamāt"—*Siddhāntalakṣaṇa*, p 56.

For a detailed discussion of this point, see below, Ch. V.

involves reference to what one has in mind at the time he uses it, then the sentence containing the word 'that' becomes particular. We can, of course, have any number of particular sentences by changing the reference of the word 'that', but the sentence containing 'that' cannot be true of all things simultaneously. This objection has a sort of similarity with what logicians now call omega-incomplete systems. Jeffery, for example, says, "Robinson arithmetic is strong on particulars but weak on generalities. Thus, although all sentences.

$0 \neq 0', 0' \neq 0'', 0'' \neq 0'''$, ...

of form $m \neq m'$ are provable in A, the corresponding generalization

10.6. $(x) (x \neq x')$

is not..."⁷

So later Nyāya philosophers developed a method of eliminating these pronouns from definitions, the method of *anugama*, which we explain now.

The earlier logicians however do not accept this interpretation of the relative pronouns. They hold that these pronouns, of course, refer to the particular object which one has in mind, yet the meaning of 'that', etc., does not involve reference to these objects. Hence sentences containing these pronouns express a universal trait common to all the cases under consideration.

We may compare here the Western method of expressing universality by means of the variables. The law, $(x) (x = x)$, for example, is logically true. The sentence means, if we eliminate the quantifier and the variable, by assuming the universe to consist of entities 'a, b, c ...', the conjunction $a=b. b=b. c=c...$ That is, the sentence expresses a truth about a, b, c... simultaneously for it is a conjunction of true statements about all the entities.

The difference between the theories of the earlier and the later Navya-Nyāya philosophers may be explained in the language of modern Western logic thus :

- (1) According to the earlier school, the pair of relative pronouns 'that-----which' stand for a universally quantified sentence.
- (2) According to the later school, this pair stands for a sentence with a free variable. Such a sentence may serve the purposes of a universal sentence only by substituting names for the free variables in succession. Still each substitution

⁷ R.C. Jeffrey, *Formal Logic : Its Scope and Limits*, P. 222.

will yield a singular sentence. Hence these philosophers use the technique of *anugama* to avoid using relative pronouns altogether. We may explain this point with an example of two types of definitions of false cognition.

Thus cognizing something as a piece of silver is to have a cognition silverness as its mode. This cognition is false if and only if the object cognized has absence of silverness, i.e., is not a piece of silver. In this definition the relative pronoun 'that' occurs twice indicating that they necessarily refer to the same real. But the point of the later school is that, here, we have got the definition of the false *cognition of silver*, not of false cognition in general. We can, of course, substitute any name to get any number of definitions all of which are singular sentences.

Def. FC. A false cognition is a cognition of *that* as a mode in a locus which has absence of *that*.

To avoid this difficulty, the technique of *anugama* is used, by which all occurrences of relative pronouns are eliminated from the definition. So we have the following definition of false cognition

DF. FCA. False-ness===Df. Being a cognition determining objecthood *qualified* by a thing, the qualification being by both the relation—— (i) residence in itself, (ii) being limited by a property not resident in itself.

A false cognition has an object, i.e., determines objecthood resident in the object. But the cognition is false because the mode under which the object is cognized is not a property of the object, does not belong to the object. The relation of the thing to (in) the objecthood is by the product of two relations——residence in the thing (itself), and being limited by a property not resident in itself. Now this definition is completely general because it involves only general terms; the relative pronoun 'itself' occurs only in the statement of the relation. But this is how all chain relations or operations on relations are stated in Navya-Nyāya. A relation of this type is the referent of an abstract relative term, like 'objecthood', which has a free variable in the place of the successor thus :

Objecthood === (λx) [x is an object of (the cognition) y]

where ' y ' is a free variable and is expressed by 'its', 'itself', 'one's own', etc., (*sva*). Thus the relation of a cognition to its object is by the relation——objecthood determined by (the cognition) itself, which is a completely general relation. Particular relations are obtained by assigning different values to 'itself'.

CHAPTER THREE

NAVYA-NYĀYA THEORY OF INFERENCE

I. SOME FEATURES OF THE NAVYA-NYĀYA THEORY OF INFERENCE

We shall note here a few general features of the Navya-Nyāya theory of inference.

(i) Two forms of immediate inferences are admitted in the traditional Western logic : (a) immediate inferences like obversion, conversion etc., and (b) immediate inferences from opposition of propositions. In Indian philosophy in general and Navya-Nyāya (abbreviated, N-N) in particular, inference is conceived as mediate inference; there does not appear to be any process corresponding to obversion, conversion etc. There is also no immediate *inference* from opposition of propositions, but N-N philosophers have a theory of blocking of cognition of certain types of propositions. We first explain why immediate inferences of type (a) are not admitted in N-N philosophy.

(a) There is no process corresponding to obversion in N-N philosophy presumably because the negative particle always attaches to a term but never to a copula. Thus there is no difference between 'S is not P' and 'S is not-P' the first being interpreted only as the second. But obversion requires a difference between a negative particle attaching to the copula and to the predicate term. From

All S is P

we have by obversion

No S is non-P

Where 'non-p' and 'No' are both necessary. As in N-N philosophy we cannot have both in the same sentence, obversion as a process of inference is not possible. What is there, instead, is the problem of double negation of a term : whether not-not-jar is the same as jar, but this is not a process of obversion.

Conversion is not possible in N-N theory because it requires use of the sign of quantity of propositions, like 'all', 'some', 'no' and so on. But in N-N philosophy words of quantity are not generally used; quantification is achieved only through a mode of presentation of objects denoted by the subject and the predicate terms. What is discussed in detail in N-N philosophy is the relational converse of propositions.

(b) Instead of opposition of propositions, there is in Navya-Nyāya,

a theory of blocking of cognitions. N-N philosophers hold that if p is true, then *not-p* is false but this is not inference; they also hold that a belief in p blocks a belief in *not-p*. This N-N theory of blocking has already been discussed in detail before (Ch. I).

(ii) The distinction between formal truth and material truth so commonly made in Western philosophy, is not made in Indian philosophy. Inference which is formally valid but not materially true is not admitted in Navya-Nyāya, for it is not a form of knowing (i.e., true cognition).

(iii) There is also no concept of inductive inference, a form of inference in which from a particular premise a universal conclusion is drawn. There is, of course, an important *problem* of explaining how generalization is possible, but there is no problem of proving a universal conclusion on the basis of facts of observation. The N-N theory of the process of generalization will be discussed in detail later.

(iv) There does not appear to be any propositional logic, i.e., a theory of inference in which unanalysed propositions are used as units of analysis instead of terms. Thus Bochenski is right when he says : "Indian logic seems to be almost entirely lacking in propositional logic."¹ Although Indian logic is a logic of terms, yet these terms are not the major, middle and minor terms of the traditional theory of syllogism. This is so not merely because terms in traditional logic are often regarded as linguistic (grammatical) entities, while in Indian logic in general, they are always non-linguistic entities which the expressions refer to, but also because in Indian logic even the so-called subject-predicate judgments (propositions, sentences, etc.) are regarded as relational. Moreover, the N-N theory has a completely different method of analysis or decomposition of cognized relational structures in order to obtain the 'terms' of infer-

1 J.M. Bochenski, *A History of Formal Logic*, tr. Ivo Thomas, p. 466. Some scholars have recently challenged this view of Bochenski on the ground that there are various types of inferences admitted in Navya-Nyāya such as *pariśeṣānumāna* which are clearly inferences of propositional logic. But this contention is not justified because according to Navya-Nyāya all types of inferences are based on the relation of pervasion which is a relation between two *terms* or objects h and s . Neither the h nor the s can ever be an unanalysed proposition.

ences. This method of analysis will be explained in detail later.

(v) In Indian philosophy in general, and Navya-Nyāya in particular, inference is conceived as a way of knowing a truth on the basis of some known truths. Inference being essentially a way of knowing, substitutivity of identity does not hold in inference. This point will be explained in detail later (Ch.4).

(vi) There is a distinction which is considered very important by all schools of Indian philosophy but which seems to be absent in Western philosophy. This distinction is between inference for one's own sake and inference for the sake of others. This is important specially for N-N, because according to it, inference for one's own sake does not involve any language. Language is necessary only for communicating an inference to others who can, then, perform, for themselves the act of drawing the same conclusion.² There is a formal difference corresponding to this difference in purpose. When one infers for one's self one does not use any language, it is a process of knowing which involves four steps. When one communicates one's inference to others, one has to use a sentence having five part-sentences which do not correspond to the four steps of inference for one's own sake.

(viii) The most important point of difference between modern Western logic and the N-N theory of inference consists in this that inference, according to N-N philosophers, is a process of cognition causally determined by other cognitions of a certain type; there is no concept of logical rules according to which inferences are drawn. But the causal determination of inferential cognition is based upon forms of objects of cognition. In what follows we shall distinguish between different types of inference admitted by N-N philosophers by the object cognized in the different steps of the inferential cognition for one's own sake. Although Navya-Nyāya does not use symbols, yet in our presentation of the N-N theory of inference we shall use symbols,

² On this point intuitionism has some similarity with the N-N theory. "However, they still appear to postulate the following characteristics for their basic intuition; (1) it is a thinking activity of the human mind. (2) It is independent of language : the intuitionist construction has no need for being bound to any linguistic expression, and...language is necessary to communicate the results...". Curry, *Foundations of Mathematical Logic*, p. 10. Navya-Nyāya, however, extends this theory to all inferences and does not restrict to mathematical thinking.

specially of first order quantificational logic with identity, and represent the different types of inference as examples of different rules of inference. Thus our presentation will be doubly inadequate, for the N-N theory does not use symbols and quantification theory in the Western sense. Instead, the function of quantification is performed by the Navya-Nyāya concept of *limitor* (*avachhedaka*) which is a concept of epistemic logic. Thus the N-N theory of inference is really a theory of epistemic acts or episodes and is fundamentally different from Western epistemic logic which uses epistemic words like 'believe', 'know' etc., in the dispositional sense.

2. NAVYA-NYĀYA INFERENCE FOR ONE'S SAKE

Inference is a form of mediate knowledge, of knowing something by knowing something else. We first show, as literally as possible, how an inference for oneself as a process of knowing is expressed in Sanskrit. We shall need to show two forms of expressions stating an inference. A stock example of the first form is :

Inf. N-N 1. (The) hill (is) fire-possessing,
because of (the reason being) smoke.

(In Sanskrit there are no articles, definite or indefinite, and the 'be' is usually omitted; hence we show them in parantheses).

The sentence

(a) (The) hill (is) fire-possessing

expresses *the conclusion*;

the expression

(b) because of smoke

states the *reason* or the *probans* (*hetu*, abbreviated *h*) of the inference.

From the conclusion two terms are determined, (i) *the locus of the inference* (*pakṣa*, *p*) which is the first term of the conclusion, corresponding to the minor term of the traditional Western syllogism; and (ii) *the probanadum of the inference* (*sādhya*, *s*) which is the second term of the conclusion roughly corresponding to the major term of the traditional Western syllogism. There is no problem of determining *p* and *h* of an inference; they are explicitly stated. *p* is what is denoted by the first term of the sentence stating the conclusion ((a) above), and *h* is what is denoted by the expression coming after 'because of' in (b). In Inf. N-N 1, *p* is (the) hill (not 'hill'), and *h* is smoke. But there is a problem in the case of *s*, for it is not explicitly stated. To understand this problem we have to consider another type

of inference. An example is the following :

Inf. N-N 2. This (is) fire
 because of heat.

Here the sentence

(a) 'This (is) fire

is the conclusion

and the expression

(b) because of heat

states the *h*.

It is important to note the difference between Inf. N-N1 and Inf. N-N 2. In the former there is a suffix '—possessing' added to the word 'fire', whereas in the latter this suffix is absent. For determining of an inference Navya-Nyāya gives the following rule of the thumb: Rule N-N 1. To determine *s* of an inference, (i) drop the suffix '—possessing' when it occurs in the second term of the sentence stating the conclusion, (ii) add the suffix '—ness' to it when the suffix '—possessing' does not occur.

Explanation. In Inf. N-N 1, in the verbal expression of the conclusion, the second term is 'fire-possessing'. To determine the *s* in this inference, the rule says that we have to *drop* this suffix; so we get the word 'fire'. The *s* is what is denoted by the word 'fire', i.e., fire (not the word 'fire').

In Inf. N-N 2, the second term of the conclusion-sentence is 'fire' which does not have the suffix '—possessing'. To determine the *s* of this inference, the rule says that we have to *add* the suffix '—ness' to this word. Thus we get the word 'fire-ness'. The *s* is what the word 'fire-ness' stands for, i.e., *the property of being a fire*, neither fire, nor the word 'fire-ness'.

Thus the three terms of Inf. N-N 1 are (i) *s*—fire; (ii) *h*—smoke; (iii) *p*—(the) hill.

The three terms of Inf. N-N 2 are : (i) *s*—fire-ness, (ii) *h*—heat, and (iii) *p*—the thing pointed to, denoted by 'this'.

Thus although the concept of *copula* is absent in Indian logic, still if the tripartite division of sentences into subject, predicate and copula is accepted, then Rule N-N1 has the effect of making the verb 'possess' or 'have' the copula.

Western scholars writing on Navya-Nyāya are often unaware of Rule N-N 1, and commit the mistake of regarding fire-possessing as the *s* of Inf. N-N 1. Professor Karl H. Potter, for example writes in

his recent book³, "The property which is proved to qualify *p* is the *sādhya* or *s*. In the above argument *s* is fire-possessing". In his earlier book⁴ Potter has analysed Navya-Nyāya inferences in another way. "The class which functions as fire—possessing does in this inference...is called in Sanskrit the *sādhya* or thing to be proved...Any class which functions as smoke-possessing does in the stock inference...is called the *hetu*". Here Potter commits three mistakes. (i) He thinks that the *sādhya* or *s* is to be determined from the term 'fire-possessing'. It is curious that he should commit this mistake, for we have already seen that in Sanskrit the inference is stated as in Inf. N-N 1, where the *h* is explicitly stated. Potter, therefore, changes it to read :

Inf. N-N 1 POT The hill is fire-possessing, because it is
smoke-possessing

and then determines the *s* and the *h* from the predicates in the traditional *Western sense*, namely, 'fire-possessing' and 'smoke-possessing'. and (iii) Potter identifies not fire-possessing and smoke-possessing (which are denoted by the terms 'fire-possessing' and 'smoke-possessing'), with the *s* and *h* of Inf. N-N 1, but identifies the *class* of fire-possessing and the *class* of smoke possessing things as the *s* and the *h*. He confuses here the *s* with the class of things which posses *s*, i.e., *the class of all* (and only) *loci* of *s*; similarly, he confuses *h* with *the class of all loci of h*.

We end this section by pointing out a mistake which Professor J.F., Staal makes in presenting an example of Navya-Nyāya inference. He says, "Logicians express 'since the pot is blue, the flowers look beautiful' by an expression which may be literally rendered by something like 'because of pot-blueness the flowers are beautiful.'⁵ But the expression 'because of pot-blueness the flowers are beautiful' cannot express any inference. In an inference, a term is an *h* which is related to both *s* and *p*, such that a relation between *s* and *p* is established. but the sentences,

The pots are blue

∴ The flowers are beautiful

show that there are 4 different terms, so that the terms 'flowers' and

³ *Encyclopedia of Indian Philosophies*, (Vol. 2), p. 181.

⁴ *Presuppositions of India's Philosophies*, p. 60.

5. 'Reification quotation and nominalisation', in *Contributions to Logic and Methodology in Honor of J.M. Bochenski*, ed. A.T. Tymieniecka.

'beautiful' are not related to a third term. Thus this is not even an instance of the traditional Western syllogism. To express an inference that is intended here, we have to say, "the flowers look beautiful, because of being placed in blue pots" where the *s*, the property of looking beautiful, the *h*, the property of being placed in blue pots, and the *p*, the flowers, are all related in the proper manner.

3. STRUCTURE OF INFERENCE

The conclusion of an inference is a cognition of the object of the form *p* possesses *s* where *p* is the locus and *s* the probandum. It is necessary that *s* be cognized prior to the cognition of the conclusion; for the conclusion is a determinate qualificative cognition which is caused by a cognition of the qualifier. As in the cognition which is the conclusion of an inference the probandum (*s*) is the qualifier, it has to be cognized prior to the conclusion.

It may be argued that in the cognition of pervasion, where *h* pervades *s*, *s* is cognized as the probandum. So the cognition of pervasion is the cognition of the probandum. This is the prior cognition of the probandum.

Against this, the opponents may point out that the cognition of pervasion is a cause of the conclusion of inference *as* cognition of *pervasion*, not as cognition of the probandum. In reply to this argument of the opponents, it may be said that the cognition of pervasion is not possible without a cognition of the probandum, for pervasion is a special type of relation between the probans (*h*) to the probandum (*s*). But this reply also cannot be accepted, for, then, the prior cognition of (*s*) is a cause of the cognition of pervasion, which is a cause of a cause of the conclusion, hence cannot be a cause of the cognition which is the conclusion. That is why even without the cognition of the probandum, the conclusion follows immediately from the cognition of pervasion. Pervasion is the relation between the pervader and the pervaded, the pervader need not be known as the probandum.

To this argument of the opponents, the Nyāya philosophers reply that the cognition of pervasion *is* also also the cognition of the probandum; the cognition of the probandum is not different from, is not a cause of, the cognition of pervasion. As there cannot be any inference without a cognition of pervasion there is prior cognition of the probandum which is necessary as the cognition of the qualifier of the conclusion.

There is, however, a group of Nyāya philosophers who argue that

although the cognition of the probandum as the cognition of qualifier is necessarily cognized prior to the conclusion in some cases of inference, this is not so in all cases. In such cases, these Nyāya philosophers argue, the cognition of the qualifier is not a cause of the qualificative cognition which is the conclusion. There is a type of inference admitted in Nyāya, where the conclusion is a negative cognition. For example, in the inference,

Earth is different from non-earth,
because of smell,

there cannot be any positive pervasion such as, wherever there is smell, there is difference from non-earth, for all earth being the locus of inference, all instances of earth are doubtful cases of the probandum, which is here difference from non-earth. Every cognition of pervasion requires a certain cognition of at least one instance of the co-presence of the probans and probandum; in this inference, all instances of earth being doubtful instances, and smell being present only in earth, there cannot be any cognition of undoubted co-presence of smell and difference from non-earth. In such a case the pervasion is purely negative; wherever there is absence of the probandum there is absence of the probans. Now, in this case, therefore, the negation of difference from non-earth is pervaded by the negation of smell. But negation of difference is not the counterpositive of the difference, but the limiter of the counterpositiveness resident in the counterpositive of the difference. Here the counterpositive of the difference is non-earth, so the negation of the difference is non-earthness. Hence in the cognition of pervasion which has to be negative in this case, the probandum is not cognized. So the rule that a cognition of the qualifier is a cause of the cognition of a determinate cognition cannot be accepted as a universal rule.

The point may be explained in this way, by reconstructing the original inference thus :

Recon. Inf.

- (1) Wherever there is non-earth-ness, there is absence of smell.
- (2) Earth has smell (absence of absence of smell).
- (3) Therefore, Earth has absence of non-earthness.

Now *a* has absence of *b*-ness if and only if *a* is different from *b*.

Earth has absence of (non-earth)-ness if and only if earth is different from non-earth, which is the original conclusion. But the point is that *a* in this conclusion which is difference from non-earth is not cognized in the premises: So, according to this school of Navya-

Nyāya, a prior cognition of the qualifier is not necessary in all cases of determinate cognition.

4. NAVYA-NYĀYA AND WESTERN THEORIES OF INFERENCE

In this section I shall compare and contrast the Navya-Nyāya theory of inference with the traditional syllogism, Aristotelian syllogism, and sometimes with the theories of modern symbolic logicians.

1. *Traditional Western Syllogism.* We note the following points. A standard example of a traditional syllogism is the following :

- Inf. 1. (i) All men are mortal.
 (ii) Socrates is a man.
 (iii) $\therefore$ Socrates is mortal.

Every syllogism consists of three sentences, and three (different) terms. The sentences must be in their logical form, i.e., they must exhibit a subject, a predicate and a copula which is not a part either of the subject or of the predicate. In this tripartite division of a sentence in its logical form, the copula has the following characteristics :

- (a) It must be a form of the verb 'be'.
 (b) It must be in the present tense.
 (c) It may be either affirmative or negative.

If we have an inference like

- Inf. 2. (i) All cats like milk.
 (ii) Pussy is a cat.
 (iii) $\therefore$ Pussy likes milk,

we must reduce the sentences (i) and (iii) to their logical form to get the following syllogism :

- Inf. 2A (i) All cats are those which like milk.
 (ii) Pussy is a cat.
 (iii) $\therefore$ Pussy is that which likes milk.

The three terms of a syllogism, the major, the middle and the minor, are the subjects and predicates of the sentences reduced to their logical form.

5. EXPRESSING NAVYA-NYĀYA INFERENCE IN ENGLISH

A. *Some general observation*

We now propose a way of expressing in English inferences like Inf. N-N 1-2, so that what Rule N-N 1 says becomes evident. The

proposal consists essentially in stating inferences of Navya-Nyāya in the manner of traditional Western syllogism; for even though Navya-Nyāya logicians state only the conclusion and the reason when discussing inference as a process of knowing, other things have to be understood. We shall state these *understood* things in two stages.

STAGE 1

At this stage, we shall use three sentences to state an inference. Our proposal is to use the verb 'possess' as the copula instead of the verb 'be' of Western logic. Each of the three sentences expressing an inference has to be analysed into three parts, subject, predicate and copula; as in traditional Western logic, the copula will not be a part either of the subject or of the predicate, but will be a separate part. The copula will have the following characteristics :

- (a) The copula in N-N inference must be a form of the verb 'possess' ('have').
- (b) It must be in the present tense.
- (c) It must be affirmative, the negative particle must be included in the predicate like the sign of tense.

Now we transform the sentence of Inf. N-N 1. The conclusion will be stated thus :

- (iii) The hill possesses fire

where the predicate word is now 'fire' and not 'fire-possessing', the suffix '—possessing' being transferred to the copula. This is what Rule N-N 1 accomplishes.

The expression stating the reason 'because of smoke' will now be stated in the form of a sentence thus:

- (ii) The hill possesses smoke

where *h* is what the predicate word 'smoke' denotes, i.e., smoke. Now we have to add one more sentence corresponding to the major premise of the traditional syllogism. This will state the relation of pervasion between *h* and *s* which is understood. It will be :

- (i) Whatever possesses smoke possesses fire.

So inf. N-N 1 in this new form will be :

Inf. N-N 1 Eng. 1

- (i) Whatever possesses smoke possesses fire.
- (ii) The hill possesses smoke.
- (iii) ∴ The hill possesses fire.

Now we come to Inf. N-N 2 and see how our proposal makes Rule N-N 1 evident. The conclusion of this inference is stated in the sentence.

(a) This is fire

where the verb is 'is'. We now have to transform this sentence in such a way that the copula becomes a form of the verb 'possess'.

Therefore we have the sentence

(iii) This possesses fire-ness (i.e., the property of being a fire),

And this is exactly what Rule N-N 1 achieves. The *s* here is fire-ness denoted by the predicate word 'fire-ness', the suffix '—ness' has been added to 'fire' in (a). So Inf. N-N 2 will have the following form:

Inf. N-N 2 Eng. (1) (i) Whatever possesses heat possesses fire-ness.

(ii) This possesses heat.

(iii) ∴ This possesses fire-ness.

We now put the traditional Western syllogism Inf. 1 in this Navya-Nyāya form to show how the two forms differ.

Inf. 1. N-N Eng.(1)* (i) Whatever possesses humanity possess mortality.

(ii) Socrates possesses humanity.

(iii) ∴ Socrates possesses mortality.

The first point of difference to be noted here is that while according to the traditional logic, the three terms of Inf. 1 are (i) man, (ii) mortal and (iii) Socrates, according to Navya-Nyāya they are (i) humanity, (ii) mortality and (iii) Socrates. Rule N-N 1 can be used for a wider purpose to determine the predicate of *any sentence*, not merely the *s* which is the predicate of *the conclusion*. This can be illustrated by considering the sentence

S1 Socrates is wise.

We can apply Rule N-N 1 in two ways to S1. (i) We may add the suffix '—ness' to 'wise' as it does not contain the suffix '—possessing', and get 'wiseness', and the predicate is what is meant by this word, i.e., the property of being wise, or wisdom. (ii) But we can also transform S1 into

S1* Socrates is wisdom-possessing

and then apply Rule N-N 1 to get 'wisdom' by dropping 'possessing'. The predicate here is what is meant by 'wisdom', i.e., wisdom, as before. Thus, according to Rule N-N 1, the predicate is wisdom.

The Rule N-N 1 is a fairly rigorous rule for determining the predicate of any sentence. This contrasts sharply with the present-day

situation in the West. There is no agreed way of analysing even such a simple sentence as S1 into its subject and predicate. We list here 5 different ways of analysing S1 into its subject and predicate.

	Subject	Predicate
(1)	Socrates	wise
(2)	Socrates	wisdom
(3)	'Socrates'	'is wise'
(4)	'Socrates'	'—is wise' or '① is wise'
(3)	'Socrates'	that he is wise.

It is impossible to *define* the terms 'subject' and 'predicates', i.e., to give their *sense*, when they do not have any agreed *reference*. Terms which do not have the same *reference* cannot have the *same sense*; so one has to conclude that there are really 5 pairs of *different terms* here, and not only one pair. Rule N-N 1 does not show us how to define the sense, but only how to determine uniquely the referent of 'predicate' in any given sentence.

The second point of difference is that Navya-Nyāya analyses the process of knowing, and is invariably talking about *objects* of knowledge, and not about words or sentences. Knowledge has to be expressed in language if there is to be any discussion about it, but the process of inference has to be sharply distinguished from the sentences used to express it. To talk about, to discuss, to study inferences, sentences have to be *used*; the analysis of inference is to be carried out *by means* of language, but this analysis is itself not a linguistic analysis, not an analysis *of* language. Hence the terms of inference, according to Navya-Nyāya, are always objects, i.e., things or their properties and relations, unless we are inferring about words, i.e., *mentioning* them.

The third point of difference is also fundamental. It concerns the interpretation of the first premiss which is universal. The N-N interpretation of this is completely different from the interpretation of a singular sentence. The universal premise has to be transformed into a sentence where *h* and *s* become explicit. This premise states an invariable concomitance between *h* and *s*. The fundamental difference between N-N interpretation and the traditional Western interpretation may be clear if we compare the two forms of any inference. The traditional Western interpretation of Inf. 2, for example, is given in Inf. 2A, Where 'all cats like milk' and 'Pussy likes milk' are treated in the same way, namely, the subjects remain the same, only the predicates are transformed to make the copula explicit. But the N-N form of Inf. 2 is. :

Inf. N-N 2 Eng. (a) (i) Whatever possesses the property of being a cat possesses the property of liking milk.

(ii) Pussy possesses the property of being a cat.

(iii) Pussy possesses the property of liking milk.

Here the three terms are : *s*—the property of liking milk; *h*—the property of being a cat; *p*—Pussy.

If (i) were treated in the same manner as (ii) or (iii), then it would have become

(1*) All cats possess the property of liking milk, which would not have shown the *h* which is not cat, but the property of being a cat. The N-N interpretation of (i) is thus essentially similar to the interpretation of the modern symbolic logicians. We shall see below why Navya-Nyāya needs to interpret this premise in this way.

Aristotle and Navya-Nyāya :

We now leave traditional logic and compare and contrast Aristotle's theory of syllogism with the Navya-Nyāya theory of inference. 'A true example of the Aristotelian syllogism' is given by Lukasiewicz thus:

Aris. Syl. 1. 'If all men are mortal
 and all Greeks are men
 then all Greeks are mortal.'⁶

If we accept Lukasiewicz's interpretation of the Aristotelian syllogism as an implication, then its difference from Navya-Nyāya inference will be fundamental. For, according to Navya-Nyāya, in every inference we pass from the knowledge of something to the knowledge of something else justified by the former, and hence the premises and the conclusion are all asserted.

We now study Aristotle's theory in some detail. Lukasiewicz says : 'Aristotle always puts the predicate in the first place and the subject in the second. He never says, "All B is A", but uses instead the expression "A is predicated of all B" or more often "A belongs to all B" (p.3). Bochenski gives the following example of Celarent :

Aris. Syl. 2. 'If stone belongs to no man
 and man belongs to all Greeks
 then stone belongs to no Greek.'⁷

It is clear that 'belong' cannot be used in its ordinary sense, for its ambiguity will vitiate the inference. This ambiguity can be brought out

⁶ *Aristotle's Syllogistic*, J. Lukasiewicz, p. 2.

⁷ *A History of Formal Logic*, J.M. Bochenski, p. 66.

if we replace 'man' by 'sons of Mr Smith', and 'Greek' by 'clubs in the village' to get the following example :

Aris. Syl. 2A. If stone belongs to no sons of Mr Smith and
 sons of Mr Smith belong to all clubs in the
 village then stone belongs to no clubs in the
 village.

But this inference is invalid, because the stone may very well belong to some clubs in the village. The fallacy here is due to using 'belong' in the first premise and the conclusion in the sense of legal ownership, but in the second premise in the sense of membership of a club. It is also otherwise clear that 'belong' is used by Aristotle in a technical sense. 'Man belongs to all Greeks' will be regarded as a very awkward expression for 'All Greeks are men', and 'stone belongs to no man' can only mean 'no man is a stone', and not 'no man is the legal owner of the stone'. Lukasiewicz's 'true example of Aristotelian syllogism' (Aris. Syl. 1) will be reduced to the following awkward form if 'belong' is used instead of 'are' :

Aris. Ay1. 18. If mortal belongs to all men and man be-
 longs to all Greeks then mortal belongs to
 all Greeks.

If 'belong' is used in its ordinary sense, then this syllogism will have to be rewritten in the following way :

Aris. Syl. 18* If *mortality* belongs to all *men* and *human-*
 ity belongs to all *Greeks* then *mortality*
 belongs to all *Greeks*.

But now there are 4 terms in the syllogism instead of the necessary 3—(i) mortality, (ii) man, (iii) humanity, and (iv) Greeks.

It is interesting to note that Mrs. Kneale gives this type of schema for Barbara, involving four terms, without realizing this fact. She writes, '...he [Aristotle] suggests that in demonstration the major, or most general, term is shown to be predicable of the middle, which is itself predicable of the minor. Obviously he has in mind a chain of forms, say, X-ness, Y-ness and Z-ness so arranged that we can say "Because X-ness belongs to every Y. and Y-ness belongs to every Z, X-ness must belong to every Z". This pattern is in fact peculiar to one of the syllogistic forms he recognizes, but it supplies the terminology for the whole system'.⁸

⁸ *The Development of Logic*, Kneale and Kneale, p. 56.

Now in saying 'Because X-ness belongs to every Y, and Y-ness belongs to every Z, X-ness must belong to every Z', Mrs Kneale uses 4 terms——X-ness, Y, Y-ness and Z. It is not clear what happens to Z-ness which she mentions. We shall see below why 4 terms are necessary to state an Aristotelian syllogism using 'belong' instead of the usual copula.

It is clear that in Aristotle's syllogism 'belong' is used in a technical sense, i.e., only in the sense of 'is predicated of'. Although modern symbolic logicians find a fundamental difference in the structures of subject-predicate and relational propositions, yet traditional logicians themselves interpreted subject-predicate propositions as a special type of relational propositions. Lukasiewicz states, 'This observation of the Stocis, which Alexander tries to confute without producing convincing counter-arguments, corroborates the supposition that the logic of Aristotle was conceived as a theory of special relations, like a mathematical theory'.⁹ These 'special relations' which Aristotle uses in his theory of syllogism are those which are stated in subject-predicate propositions. These relations are enumerated by Aristotle in his doctrine of predicables. Thus Kneale writes, 'The headings indicate the relation which the predicate may have to the subject in such propositions. In the first place it may be the *definition* of the subject...Secondly, the predicate may be a property of the subject...Thirdly, the predicate may be the *genus* of the subject...Fourthly, the predicate may be an *accident*, i.e., a character which can belong to instances of the species, but need not so belong'.¹⁰ H.W.B. Joseph writes : 'In the present chapter [on predicables] we have to consider another division of terms, based upon the relation in which a predicate may stand to the subject of which it is predicated. Aristotle recognizes four such relations, and one of them he subdivides, obtaining five in all...According to Aristotle, in every judgment the predicate must be either the *definition*, the *genus*, the *differentia*, a *property* or an *accident* of the subject'.¹¹ Writing about Aristotle's syllogism, Joseph says, 'A syllogism is actually an argument in which, from the given relation of two terms, *in the way of subject and predicate*, to the same third term, there follows necessarily a relation, in the

⁹ Lukasiewicz, Loc. Cit, p. 61.

¹⁰ Kneale and Kneale, loc. cit, p. 56.

¹¹ *An Introduction to Logic*, H.W.B. Joseph, p. 66.

way of *subject and predicate*, between these two terms themselves'.¹²

Thus 'A is predicated of B' means in Aristotle that A is related to B in any one of the five relations specified by him in the doctrine of predicables.

According to Aristotle, the predicate *inheres* in the subject, i. e. the Aristotelian syllogism, especially demonstration, is a theory of the relation of inherence. Bochenski gives the following translation from Aristotle : 'There are three elements in demonstration : (1) what is proved, the conclusion—an attribute inhering essentially in a genus; (2) the axioms, i.e., the starting points of proof; (3) the subject-genus whose attributes i.e., essential properties, are revealed by the demonstration'. On this, Bochenski makes the following comments : 'It emerges clearly from this text that for Aristotle a demonstration (1) is a syllogism, (2) with specially constructed premises, and (3) with a conclusion in which a property is predicated of a genus. That, however, can only be achieved by means of a syllogism in the first figure',¹³ Now this will help us to understand why Kneale has to use 4 terms to explain a demonstration. In the conclusion 'an attribute inhering essentially in the genus' is to be stated. But, then, in every Aristotelian syllogism, at least one term has to be used as both subject and predicate. Now in the first figure this is the middle term which is so used. But when a term is used as a subject, it is not an attribute; when it is used as a predicate it is an attribute. Thus Kneale has to say, 'Because X-ness belongs to every Y, and Y-ness belongs to every Z' where she has to use once the term 'Y' when it is the subject, and again the term 'Y-ness' when it is the predicate. Thus in every demonstration there will be 4 terms.

Now we come to another point. It concerns the ambiguity of the copula in Aristotelian and traditional syllogisms. We have seen that according to Aristotle the sign of predication expresses any one of the five relations, thus making the copula ambiguous. As a matter of fact, modern logicians have criticized the traditional logicians for confusing different senses of the 'be' used as the copula—(i) class inclusion, (ii) class membership, (iii) identity. But if we accept Joseph's characterization of a syllogism as 'an argument in which, from the given relation of two terms, in the way of subject and predicate, to the same third term, there follows necessarily a relation, in the way of subject

¹² Joseph, Ibid, p. 249.

¹³ Bochenski, loc. cit, p. 73.

and predicate, between these terms', then it is *not necessary* to distinguish between the different senses of the copula, *for developing a theory of syllogism*. The ambiguity of predication does not affect the validity of the syllogism. This will be clear if we examine the following three types of traditional syllogism.

Type A. All M is P
All S is M
 $\therefore$ All S is P

Type B. All M is P
S is an M
 $\therefore$ S is a P
where 'S' is a name

Type C. Tully is wise
Cicero is Tully
 $\therefore$ Cicero is wise.

It is clear that syllogisms of all these three types will be valid, although for different reasons.

Type A will be valid because of the transitivity of class-inclusion.

Type B will be valid because of the following set-theoretic law :
 $A \subset B, a \in A \therefore a \in B$.

Type C will be valid because of the substitutivity of identicals.

Thus the ambiguity of predication will not affect the validity of syllogism.

But this is not the case with 'possess' which we have proposed to use as the copula in N-N inferences. It is as ambiguous in its ordinary usage as 'belong', and its ambiguity, like the ambiguity of 'belong', vitiates the inference. First of all, we note that 'possess', in its ordinary sense, is not transitive.

From

a possesses *b*
b possesses *c*
we cannot infer
a possesses *c*,

just as in the case of 'belong' we cannot infer

a belongs to *c*

from *a* belongs to *b* and *b* belongs to *c*.

As matter of fact, 'belongs' in its ordinary sense is the converse of 'possess'. So 'possess', too, has to be given a technical sense.

The meaning which Navya-Nyāya logicians ascribe to 'possess' includes Aristotle's inherence, although it is wider than inherence. Indian logicians belonging to different schools were interested in a certain type of relations which produce the knowledge of one of its

terms being *in* (*upon*, *at*) the other. In their logic they considered exclusively this type of relations which they termed 'occurrence-exacting' (*vyrttiniyāmaka*). For example, the relation of a quality to anything which has it is an occurrence-exacting relation, for we know that the quality may be a generic quality, a differentia, a proprium or an accident in the sense of Aristotle. But the Indian concept of occurrence-exacting relation is wider than the Aristotelian concept of inherence, because, according to Indian logicians, even the relation between a book and a table, for example, is an occurrence-exacting relation if the book is on the table. Thus a relation between two things can be an occurrence-exacting relation. But according to Aristotle, as we have already seen, only an attribute can belong to a thing. Now Navya-Nyāya logicians define the term '*property*' (*dharma*) as the second member (*pratiyogin*) of occurrence-exacting relations which alone are to be denoted by the technical term 'possess' as used in inferences. Thus the table possesses the book when the book is on the table, and the book is a property of the table. To distinguish this sense of 'property' from the usual Western sense, we shall write 'property (N-N)'. Thus even though in ordinary Sanskrit one says that a person possesses dogs, houses, landed property, etc., yet dogs etc., cannot be said to be the property (N-N) of the person, because a person possessing a dog does not produce the knowledge that the dog is in (on, or upon) him, he is simply the owner of the dog. On the other hand, if a person is carrying a dog, whether he be its owner or not, the dog, then, will be his property (N-N).

The suffix '-possessing' is used in Navya-Nyāya as a *concretization* operator, and the suffix '-ness' as a an *abstraction operator*, on terms. In ordinary Sanskrit, as in other natural languages, if a *concrete term* is given, an abstract term can be formed from it, and given an abstract term a concrete term can be formed. Thus from the adjective 'ugly' (a concrete term) we can form the abstract term 'ugliness' by the suffix '-ness'; and from the abstract term 'beauty' we can form a concrete term 'beautiful'. Navya-Nyāya logicians, however, generalize this procedure of natural language and form concrete and abstract terms from *any terms whatsoever*. This is connected with their very wide concept of property, i.e., property (N-N). From the concrete term 'pot', they form not merely the abstract term 'pot-ness', but also another concrete term 'pot-possessing' to denote anything which has the pot as a property (N-N), i.e., anything which has the pot on, or upon, or in it for example, the floor (*on* which the pot is), or the box (*in* which it is). We can go

on like this. For example, if a book *is on* the table, using 'possess' in its strict sense, we shall have

the table possesses the book

whence the book becomes a property (N-N) of the table. Thus the table becomes the book-possessing thing and the term '(this-book)-possessing', here, will denote the table. Now if the table is, in its turn, *on* the floor, the floor will be table-possessing, so that '(this-table)-possessing' will denote the floor. As the table is denote by 'this book-possessing', the floor will be denoted by '(this book-possessing-possessing' and so on.

The abstraction operator '-ness' and the concretization operator '-possessing' denote inverse operations, so that a-possessing-ness = a-ness-possessing = a. But as there are concrete terms of higher orders in which the concretization operator occurs a number of times, so also there are corresponding abstract terms of higher orders in which the abstraction operator '-ness' is iterated. Thus from the doubly concrete term '(book-possessing)-possessing' we can form the doubly abstract term '(((book-possessing)-possessing)-ness-ness to denote again the book; for the floor is denoted by '(book-possessing)-possessing', so that the term '((book-possessing)-possessing)-ness' denotes the table which is the property (N-N) of the floor, and '(((book-possessing)-possessing)-ness)-ness' denotes the property (N-N) of the table, which is the book.

But there are abstract terms of higher orders formed from *abstract terms* also—like 'cow-ness-ness' which denotes the property (N-N) of the property (N-N) of a cow, which term may be symbolized as ' $(\lambda y)(y=(\lambda x)(Cx))$ ', where 'Cx' is 'x is a cow', and ' λ ' is the abstraction operator. What these higher order abstract terms formed from abstract terms in the ordinary sense mean, has been debated even within the school of Navya-Nyāya. But the need for such higher order abstract terms is felt to explain the mode (*prakāra*) under which cowness is to be cognized when it is denoted by the abstract term 'cowness'. The Navya-Nyāya theory of meaning of words requires that *every word* denotes whatever it denotes only under a mode. The word 'cow' denotes anything which is a cow only under the mode of being a cow, i.e. cow-ness. But the word 'cowness' which denotes the property of being a cow must have its *own mode of presentation*, which is denoted by 'cowness-ness' and so on. This corresponds to Frege's problem of

infinite regress of sense and denotation of higher and higher orders.¹⁴

Thus, although, in principle, there is the possibility of forming higher and higher orders of concrete and abstract terms, yet Navya-Nyāya logicians, being interested in inference only as a form of knowing, rejects very artificial concrete and abstract terms of arbitrary orders as not permissible, because they are never actually known.

Now we can understand why Navya-Nyāya logicians have to interpret the universal premise in a way different from Aristotle and the traditional logicians of the West. This is due to the fact that the concept of occurrence-exacting relation, denoted by 'possess' in its technical sense, is much wider than the concept of inherence denoted by the copula. Thus the form

a possesses b
 a possesses c
 $\therefore a$ possesses c

will not be a valid form of inference even when 'possess' is used in its technical sense. For example,

The table possesses the book
 The floor possesses the table

will not imply

The floor possesses the book.

To solve this difficulty, Indian logicians generally, and Navya-Nyāya logicians in particular, interpret the universal premise in a way which is totally different from the Aristotelian or the traditional way. Any occurrence-exacting relation can be used in the premises and the conclusion of a Navya-Nyāya inference. Thus the second premise and the conclusion need not have the same relation :

(ii) $p R_1 h$

(iii) $\therefore p R_2 s$

where both R_1 and R_2 are occurrence-exacting relations. To complete the inference the first premise is stated by Navya-Nyāya logicians in the form :

(i) $(x) (x R_1 h \supset x R_2 s)$.

Raghunātha Śiromaṇi (16th century), one of the greatest logicians of India, pointed out that if the first premise is stated in the form (i), then there is no need to restrict 'possess' to occurrence-exacting relations—any relation whatever can be used. For the form

¹⁴ *Meaning and Necessity*, R. Carnap, p. 14.

(i) $(x) (xR_1 h \supset xR_2 s)$

(ii) $pR_1 h$

(iii) $\therefore pR_2 s$

will be valid for any relations, R_1 and R_2 , and not merely for occurrence-exacting relations.

Thus we see why it is necessary for Navya-Nyāya logicians to interpret the universal premise not as a subject-predicate proposition. This premise is always stated in the form 'whatever possesses h possesses s ', where the two occurrences of 'possess' need not stand for the same relation. Indian logicians in general, and Navya-Nyāya logicians especially, have devoted much attention to the study of the nature of this relation of h to s stated in (i)— h is said to be *pervaded by* s if and only if (i) holds. We shall discuss the nature of this *relation of pervasion* in detail below.

S T A G E 2

So far we have stated a Navya-Nyāya inference by three sentences. Now we show that there is another step in the process of inference which has to be expressed in another sentence. By writing 'smoke is pervaded by fire' in place of 'whatever possesses smoke possesses fire' in Inf. N-N 1. Eng. (1) we get the following three steps :

Inf. N-N 1. Eng. (1)*

(i) Smoke is pervaded by fire.

(ii) The hill possesses smoke.

(iii) $\therefore$ The hill possesses fire.

The Navya-Nyāya logicians argue that the process of inferring (iii) is from (i) and (ii) taken together, for the conclusion follows from the premises taken together. This step will synthesize (i) and (ii) into a complex judgement thus :

The hill possesses smoke (which is) pervaded by fire. This complex judgement or knowledge is called *consideration* (*parāmarśa*). Thus the whole process of inference involves the following 4 steps :

Inf. N-N 1. Eng. (2)

(i) Smoke is pervaded by fire.

(ii) The hill possesses smoke.

(iii) The hill possesses smoke pervaded by fire.

(iv) $\therefore$ The hill possesses fire.

The Mīmāṃsā logicians do not admit (iii) of inferential synthesis of (i) and (ii). They argue that to say that in an inference the conclusion follows from the two premises taken together is simply to say that both

of them are necessary (and sufficient) to imply the conclusion, that the conclusion does not follow from any one of (i) and (ii). It is unnecessary to postulate a complex judgement like consideration as an additional *necessary* step for the inference. Moreover, if the premises have to be 'taken together', they have to be given separately. Thus steps (i) and (ii) will be necessary even for consideration, i.e., step (iii). It will, therefore, be much simpler to hold that the conclusion follows from (i) *and* (ii), i.e., from a conjunction of them, than to postulate (iii) as intervening between (ii) and (iii).

The Navya-Nyāya logicians point out that the Mīmāṃsā logicians have missed the essential function of the *h* (i.e., the middle term) in an inference. For mere conjunction of two premises it is not necessary that they have a common term; any two premises can be conjoined. The fact that the middle term must be common to both the premises shows that mere conjunction is not here intended, that they have to be combined in a way different from mere conjunction. According to the Navya-Nyāya logicians, the entire function of the middle term is exhausted in relating *p* (the minor term) with *s* (the major term). To perform this function what is necessary and sufficient for the middle term is that it be related to the major term in a special way and to the minor term in a special way. It is not at all necessary to know any other special property (N-N) that the middle term may have. Thus even if we do not know whether the thing on the hill is smoke or light, we shall be able to infer the presence of fire there, for smoke and light both are pervaded by fire. It is sufficient for us to know that there is *something* which has the requisite relations with the major and the minor terms. Thus even if we do not know (ii), we can infer the conclusion from :

(iii)* The hill possesses *something* pervaded by fire.

This shows that the specific property (N-N) of the middle term—that it is smoke—is not relevant for the inference.

If it is granted that the specific nature of the middle term is not relevant for the inference, then it becomes necessary to combine the two premises in a complex judgement. For we cannot argue :

- Inf. N-N1. Eng. (2)*
- (i) Something is pervaded by fire.
 - (ii) The hill possesses something.
 - (iii) ∴ The hill possesses fire.

for the something in (i) and the something in (ii) are not necessarily the same. Navya-Nyāya logicians point out that we may very well argue, in case the above argument is valid, in the following way :

- Inf, N-N1. Eng. (2)** (i) Smoke is pervaded by fire.
 (ii) The hill possesses light.
 (iii) $\therefore$ The hill possesses fire.

for light too, like smoke, is a *probans* (*h*) of fire. To ensure that the *something* in (i) and the *something* in (ii) are the same, the two judgements have to be combined to form *one* judgement, although more complex in structure than (i) or (ii), thus :

The hill possesses something which is pervaded by fire. The point of the Navya-Nyāya logicians is, therefore, this. We cannot have any inference from

- (i) (Ex) (*x* is pervaded by fire)
 (ii) (Ex) (the hill possesses *x*)

but we can have an inference from

- (iii) (Ex) (the hill possesses *x*, *x* is pervaded by fire).

(iii) here is weaker than the conjunction of (i) and (ii) of Inf. N-N 1. Eng. (1), in the sense that from the conjunction, 'the hill possesses smoke and smoke is pervaded by fire' we can infer (iii), but (iii) does not imply this conjunction. The Navya-Nyāya logicians argue that the necessary and sufficient condition for inference is (iii) by itself, and not the conjunction of (i) and (ii), nor even (i) and (ii) separately of Inf. N-N 1. Eng. (1). To know (iii) it is not necessary to know either (i) or (ii) or both. Thus, if someone tells us that there is something on the hill which is pervaded by fire, we can at once infer that there is fire on the hill, without the additional information whether that something is smoke or light or any other thing.

By their insistence that both the premises have to be known the Mimamsa logicians really mean that the middle term (*h*) has to be known in its specific character, which the Navya-Nyāya logicians deny. We may explain this point of the Navya-Nyāya logicians by an analogous case in the concept of the relative product of relations. To prove that the relative product of the two relations, *R* and *S*, holds between the terms, *a* and *b*, i.e., to show that *a* R/S *b*, we may show that there is a particular thing *c* such that *a* R *c* and *c* S *b*. But this is not necessary, for by definition of relative product of relations, it is sufficient to show that there is something such that *a* is related to it by *R*, and it is related to *b* by *S*, i.e., (Ex) (*a*R*x*.*x*S*b*).

Now we see how Navya-Nyāya refutes the claim of Mīmāṃsā that even in order to have the consideration, the two premises have to be known first. It is evident that the two premises need not be known if

the consideration is known. The consideration is weaker than the conjunction of the two premises. This also explains why there is no infinite regress in the Navya-Nyāya position, namely, another synthesis of the two premises and third synthesis and so on. For according to Navya-Nyāya, the synthesis *by itself* suffices for the inference, and to know the synthesis it is not necessary to know the two premises.

This argument of Navya-Nyāya logicians can be carried over the Western syllogisms considered as an inference or an implication. To explain this point, we consider how we can get an instance of a syllogism from its *form*. The form Barbara is often stated as the law of the transitivity of class inclusion :

(B) (b) (c) (a) ($a \subset b.c \subset a. \supset c \subset b$),

where 'a', 'b' and 'c' are class variables. Now to get a concrete example of a syllogism of the form (B), it is usually thought necessary to instantiate *all the* variables by constants. This may be done in the following way :

Syl. 1. (1) (c) (a) ($a \subset M.c \subset a. \supset c \subset M$) (B) UI

(2) (a) ($a \subset M.K \subset a. \supset K \subset M$) 1, UI

(3) $H \subset M.K \subset H. \supset K \subset M$ 2, UI

where 'H', 'K' and 'M' are abbreviations of 'the class of men', 'the class of kings' and 'the class of mortals'.

Now Syl. (3) can be regarded as a concrete example of Barbara, if we regard syllogism as an implication. If, however, we want to infer 'all kings are mortal' ($K \subset M$), then we have to affirm the antecedent of Syl. 1(3) which is a conjunction, by affirming the two conjuncts.

(4) $H \subset M.K \subset H$

(5) $\therefore K \subset M$.

But it is not necessary to instantiate the middle term in order to have the syllogism.

Syl. 2. (1) (c) ($a \subset M. c \subset a. \supset c \subset M$) same as

(2) (a) ($a \subset M. K \subset a. \supset K \subset M$) in Syl. 1.

(3) (Ea) ($a \subset M. K \subset a$) $\supset (K \subset M)$ by rules of
quantification.

If we want to infer $K \subset M$, then we have to assert

(4) (Ea) ($a \subset M. K \subset a$)

which becomes a premise of the syllogism, and not Syl. 1 (4)

For we can now have

(5) $K \subset M$ 3, 4, MP

just as in Syl. I.

Now the question is whether Syl. 2 should be regarded as a syllogism at all. We give the following reason for regarding it as a syllogism. If we accept the theory that the middle term of a syllogism need not be specified, then we can explain why given the conclusion 'all kings are mortal', we cannot uniquely determine the premises from which it follows, although in this particular case the Figure and the mood are uniquely determined. This indeterminacy of the premises (not of the form of the premises) is due wholly to the fact that different middle terms can be used to construct premises from which 'all kings are mortal' can be deduced syllogistically. The theory that the conclusion of a syllogism follows only from a conjunction of its so-called premises fails to bring out this essential feature of the middle term.

Although we have tried to explain how the Western syllogism may be viewed from the Navya-Nyāya point of view, it is clear that neither Aristotle nor the traditional Western logician would consider Syl. 2 as an instance of a syllogism. It is interesting to note that in Aristotle's view 'Quick wit is a faculty of hitting upon the middle term instantaneously' (Posterior Analytics, Bk. 1, Ch. 34 89^b 10).¹⁵ On the Navya-Nyāya analysis, no middle term is necessary, hence no quickness of wit, in Aristotle's sense, is relevant. Thus Aristotle seems to side with the Mīmāṃsā logicians in holding that the specific nature of the middle term has to be known for inferring syllogistically.

The point that the Navya-Nyāya logicians are making here can be generalized. The Navya-Nyāya position is based upon the fact that the middle term does not occur in the conclusion, so that the scope of the quantifier binding it can be restricted to the antecedent only. Using the protothetic notation, *modus ponens* as an implication is :

(q) (p) (((p $\supset$ q). p) $\supset$ p)

(p) (((p $\supset$ q). p) $\supset$ q)

(Ep) ((p $\supset$ q). p) $\supset$ q

Now we infer q by asserting

(Ep) ((p $\supset$ q). p).¹⁶

B. Pervasion

(a) Pervasion and generalization

Pervasion has been represented uniformly as universally quantified assertions, yet according to N-N not all types of pervasion involve

¹⁵ Due to Professor I.M. Copi.

¹⁶ Due to Professor I.M. Copi.

generalizations from observed facts. N-N distinguishes between three different types of cases of pervasion. (i) There is a type of inference in which we infer the presence of an individual quality or property present in a particular thing on the basis of the presence of another quality-individual present in the same thing. For example, when we infer that this fruit has this colour because it has this particular taste (*etadrūpavān etadrasāt*), both the *h* (the taste-particular——this taste) and the *s* (this colour) are particulars which can be present in only one thing, namely, this fruit. *This* colour, i.e., the colour-individual, which is present in this fruit is not the same colour individual present in another object, though both these colours may be of the same kind, say, red, even exactly the same shade of red. So also with the taste which is a particular and can belong only to this fruit. The relation of pervasion underlying this inference can be stated thus : Whatever has this taste has this colour. But although it is stated in the form of a universal proposition, there is no generalization here from observed cases to unobserved cases; for there is only one value of 'x' which makes the definiendum true. So only one object has to be observed in order to cognize the relation of pervasion between its two qualities. This one observation of the concomitance of two particular qualities of one object is both necessary and sufficient to establish the relation of pervasion between the *h* and the *s* of the inference.

(ii) A second type of inference, too, has a single object as *h* and another single object as *s*, for example, when we infer the universal of substance-hood from the universal of pot-hood. This will be the case, generally, when the *h* and the *s* are both universals. The pervasion underlying this type of inference will be a relation between two objects, and one observation is both necessary and sufficient to establish the pervasion.

(iii) The third variety of inference is the usual variety, for example, where we infer the presence of fire somewhere, on the basis of the presence of smoke there. Here smoke is the *h* and fire the *s*, and the relation between *smoke* and *fire* is the pervasion. But as both 'smoke' and 'fire' are general terms, they refer to many particulars in different places; there are indefinitely many values of 'x' which make the definiendum true. The pervasion 'wherever there is smoke there is fire' does involve a passage from observed cases to unobserved cases.

Now we can see the difference between (ii) and (iii). In cases of the type (iii), the *h* and *s* are denoted by *general terms* whereas in cases

of the type (ii), they are denoted by *singular abstract* terms. Therefore the *h* and *s* in cases of this type are single objects. It is only in cases of the type (iii) that generalization is involved which is the source of many different types of problems.

**(b) The possibility of the psychological
process of generalization**

(i) The *Pūrva-Mīmāṃsā* theory

The *Mīmāṃsakas* assert that we need repeated observations to be able to generalize. It is not enough that we perceive that both smoke and fire are present in one instance, we have also to perceive many such instances. This is because even though we perceive smoke and fire together in one place, we still have doubts about their being together in other places. When we find that smoke and fire are co-present uniformly in all instances which we have observed, we become *convinced* of the invariable concomitance of smoke and fire. This corresponds roughly to Mill's method of agreement.

The *Naiyāyikas*, however, find this theory unsatisfactory for the following reasons. (a) The term 'many observations' is ambiguous. It may mean : (i) 'observation of many loci of the *h* and *s*', or (ii) 'observation of many loci of many individual *h*'s and *s*'s', or (iii) simply 'many observations'. But in none of these, the term 'many observations' can explain how pervasion is *cognized* in all types of cases. For example, if we accept sense (ii), then we cannot explain how we *cognize* pervasion in case (i) (for the reason stated) and also in case (ii), where the *h* and *s* being universals are single objects, and there cannot be 'many individual hetus and *sādhya*s'. This is the real difference between case (ii) and case (iii). Sense (iii) is very vague, as it does not say *how many* observations are necessary for generalization, or *how long* one should continue observation. If we accept sense (iii), then we cannot explain why, in spite of repeated observation of concomitance of two objects in case (iii), we do not generalize always, in every case, i.e., do not *always* cognize that they are invariably related. This leads us to the main objection of the N-N philosophers to the *Pūrva-Mīmāṃsā* theory.

(ii) The N-N theory

This theory is based on a theory of blocking of cognitive act by other cognitive acts. To explain how pervasion is cognized with *lat*

tainty in case (iii), we have to take into consideration the presence or absence of doubt of the cognizing subject. Sceptical philosophers like the *Cārvākas* argue that we can never be sure that the unobserved cases will be like the observed cases. If one has doubt of this sort, then the presence of this doubt will prevent him from generalizing with certainty even after repeated observations of uniform concomitance. If, on the other hand, one is naive and credulous, i.e., does not suffer from any disabling constraints, he will acquire certainty by observing even one favourable instance. For acquiring a sure cognition of pervasion involving generalization, therefore, two conditions are to be fulfilled :

(x) The cognizing subject must be free from doubt that the *h* may be a deviating *h*, i.e., may be present where the *s* is absent.

(y) The subject must have observed the concomitance of *h* and *s* at least in one instance.

Now we shall explain how these two factors explain the psychological possibility of generalizing with certainty. The *logical* problem of induction can be raised only after this psychological question has been answered. If no one ever actually generalizes with certainty, the question whether he is logically justified in *so* generalizing cannot arise at all. If no one actually generalized from observations of some positive instances, then the logical question whether one *could* justifiably *so* generalize would have been an empty question. So N-N first examines the possibility of generalization.

N-N develops an elaborate theory to explain how doubt about the *truth* of a general statement even after repeated observations of uniform concomitance of *h* and *s* *prevents* one from generalizing with certainty. In this theory, N-N uses its concept of causal factors. According to N-N philosophers, whenever anything is produced, there are two types of causal factors, positive and negative. A positive causal factor is that the presence of which is necessary, and a negative causal factor is that the absence of which is necessary, for the production of the effect. If a negative causal factor is *present* in a case, then the effect is prevented from coming into being, and so the *presence of a negative factor* is called a preventer (*pratibandhaka*) of the effect. Now applying this theory to the production of cognition-events, N-N philosophers distinguish between two different sorts of preventers. (i) There are some factors like emotional disturbance which act as preventers to all cognitions. In this type of blocking, the inner states of a person, by their mere existence, prevent the subject from believ-

ing; for example, the excessive love of a fond mother for her son will prevent her from believing in any bad report about him. This type of blocking is psychological and N-N philosophers are not concerned very much with this sort of blocking. They are interested in a different type of blocking of one *cognitive state* by *another by virtue of their objects*. Thus if a man is sceptical by nature, then he will not be able to believe in anything, not merely in a particular case of pervasion. But what prevents one from believing in a particular generalization is not one's mental make up, but is the fact that he has a particular doubt, e.g., the doubt that the *h* in this case might be a deviating one. Pervasion and deviation are logically contradictory, and a cognition of deviation, even though it may be of the nature of doubt, prevents the *perception* of pervasion. So belief in generalization will be possible, only when there is no doubt about deviation. The generalization will be *logically justified*, according to N-N philosophers, if any doubt whatsoever about deviation *cannot* arise at all. To explain how this is possible, N-N philosophers have developed their theory of *tarka*.

(c) *The N-N Theory of Tarka*

For deciding whether one *can* have any doubt that a particular *h* is a deviating one, the N-N philosophers have a type of argument with a counterfactual premise. As this type of argument is of a very special type, we shall explain its essential features by examining the stock example of pervasion of smoke by fire.

The pervasion in this example may be stated thus : smoke is pervaded by fire; or, wherever there is smoke there is fire; or in every locus of smoke, fire is present. If we have a doubt which prevents us from believing in this pervasion, then this doubt will be that fire may be absent from a locus of smoke, i.e., that smoke may deviate from fire. The doubt in this case is resolved by appealing to a more fundamental relation between smoke and fire, namely, the causal relation. This may be compared with Mill's theory that induction is based on the law of uniformity of nature and the law of causation. But the argument which proves the pervasion of smoke by fire from their causal relation is, according to N-N philosophers, of a peculiar nature, is not deduction or even inference. Thus the N-N theory is different from the theory of some Western philosophers that induction is nothing but deduction with the law of uniformity of nature or the law of causation as the major premise. The nature of the N-N form of argument involving *tarka* may

be explained by contrasting it with ordinary inference.

N-N Inf.

- (1) Smoke is pervaded by fire.
- (2) The hill possesses smoke.
- (3) The hill possesses smoke pervaded by fire.
- (4) Hence, the hill possesses fire.

N-N Arg. (Tentative from)

- (5) Deviation of fire is pervaded by absence of being caused by fire.
- (6) Smoke possesses the property of deviating from fire.
- (7) Smoke possesses deviation of fire pervaded by absence of being caused by fire.
- (8) Hence, smoke possesses the absence of being caused by fire.

But (8) is unacceptable to both the parties of the argument—the proponent and the opponent—for both have accepted that smoke *is* caused by fire. The difference between *N-N Inf.* and *N-N Arg.* consists essentially in this that if we believe with certainty that the hill does not possess fire, *Inf.* will not be possible, whereas unless the contradictory of the conclusion (8) is accepted by both parties of the argument, *Arg.* will be not possible. Firm belief in the contradictory of the conclusion is an impediment to inference, but is *necessary for tarka*. The reason for this fundamental difference between *Inf.* and *Arg.* is obvious. In *Inf.* the conclusion has to be asserted, i.e., to be cognized with firm belief. But if the contradictory of the conclusion is firmly believed, then anyone who has this belief will be prevented from asserting the conclusion (4). But it is essential for *tarka* that the contradictory of the conclusion is cognized with belief. Now when one believes that the contradictory of a certain proposition is true, then he can, at best, entertain the proposition itself without believing in it for a moment. Such a cognition with full realization that what is cognized is disbelieved is called *āhāryajñāna*, i.e., contrary-to-belief supposition. Thus *tarka* will have to be put in the form of a counterfactual hypothesis.

This form will be :

*N-N Arg**

- (5*) Deviation of fire is pervaded by absence of being caused by fire.
- (6*) If smoke deviated from fire, then it would not have been caused by fire.
- (7*) But smoke is caused by fire.

(8*) Hence, smoke cannot deviate from fire.

Thus the doubt is resolved.

Against the opponent, the proponent argues that if smoke deviated from fire, then it would not have been caused by fire. If anyone asserted that smoke deviated from fire, he would have to accept that smoke is not caused by fire—a position not acceptable to the opponent also. So when the opponent admits that smoke is caused by fire, then he cannot also doubt that smoke may deviate from fire.

Thus every *tarka* is based on a pervasion, for example, (5*) of Arg., can that pervasion, in its turn, be doubted? The answer, it appears, must be in the affirmative, for we can surely doubt if deviation of fire is really pervaded by absence of being caused by fire. But this doubt will not arise, for it follows from the very concept of cause and deviation that if one thing deviates from another, then the first thing cannot be caused by that. The causal relation guarantees uniformity of agreement in presence and absence. Thus anyone who accepts cause as necessary and sufficient condition of the production of the effect does not have the option to doubt that the effect (here smoke) may deviate from the cause (fire).

Thus although (5*) cannot be doubted by anyone who has accepted (7*), what happens if one doubts (7*) itself, i.e., doubts if smoke is really caused by fire? One immediate consequence of this further doubt will be that Arg.* will not be possible against him, for step (7*) will not be available now. How to remove *this* doubt which will inhibit the psychological process of generalization, and hence the cognition of pervasion? The N-N procedure in such a case is to show that such a doubt cannot be seriously held at all. Doubt that smoke may not be caused by fire may take one of the following three forms : (i) smoke is perhaps produced only when fire is absent, (ii) perhaps smoke is produced in some cases without fire, or (iii) perhaps smoke is not produced at all by any cause. But none of these doubts can arise at all. The N-N theory is that one cannot even start doubting that smoke may not be caused by fire; for this doubt is blocked i.e., prevented from arising by the knowledge of agreement in presence and agreement in absence of smoke and fire which everyone has. If one persists in maintaining that even though one knows that there is uniform agreement in presence and absence of smoke and fire and that still one may doubt that smoke may not be caused by fire, then the N-N reply will be that such a doubt is insincere, for one's action will give the lie to

such a profession of doubt. It is important here to distinguish between having a doubt and merely saying that one has a doubt.

Doubt being an internal state cannot be directly observed by anyone except the doubter himself (in introspection). But his own statement that he has a doubt becomes suspect when his actions come into conflict with his avowal. Suppose someone *says* that he doubts whether smoke is caused by fire, but regularly lights a fire to produce smoke. When there is a conflict between a person's avowal and uniform, unhesitating behaviour, according to N-N it is such behaviour which has to be accepted, and avowal rejected, *as evidence of belief*. As no one can both believe and doubt the same thing at the same time, N-N philosophers regard such cases of conflicting evidence as cases of insincerity or deliberate lying. N-N does not admit a genuine conflict between sincere, honest avowal and uniform, unhesitating behaviour. There cannot be any error in introspection which is the cause of avowal. Introspection, according to N-N, is infallible.

Thus the N-N theory that one cannot generalize, correctly or incorrectly, so long as one has the doubt that the unobserved cases may not be *like* observed cases, is established. The argument that one can go on doubting, and, therefore, will never be able to perform the act of generalizing is countered by N-N by examining all such cases *individually*, and by showing that at one stage or the other the doubt is self-defeating in the sense that the belief as evidenced by behaviour contradicts it and therefore prevents the doubt from arising.

(d) *The Cārvāka Theory*

The *Cārvāka* philosophers have argued that doubt about a general statement cannot be resolved, because we have to pass from observed cases to unobserved cases, and this passage is never *logically justified*. Man being a rational animal, he has to withhold belief in a proposition which is not rationally justified. Action or behaviour is evidence of belief not in the *truth*, but only in the possibility (probability?) of the generalization. Udayana, the precursor of N-N, has refuted this position in a famous verse. He points out that to doubt that smoke may not be pervaded by fire is to have already made an inference. For the cases of smoke which have been observed to be attended with fire cannot admit of any doubt. We can have a doubt only about unobserved cases of smoke, cases of smoke which are in different places and times. But if we do not know that there are such cases of smoke at different and distant places, we cannot have a doubt about *them*. That is, no such

doubt is possible if we know that the observed cases are *all* the cases that are there, that there are no other cases left unobserved. How can we be certain that there are unobserved cases of smoke? The Cārvāka philosophers admit perception as the only source of knowledge, so they cannot talk of unobserved cases of smoke being known. To talk of unobserved cases, inference is necessary. If to pass from observed cases of concomitance of smoke and fire to unobserved concomitance is unjustified, then to pass from observed cases of smoke to the *existence* of unobserved cases of smoke is equally unjustified. The N-N philosophers offer a theory of *sāmānyalakṣaṇa pratyakṣa* to explain how we can talk of unobserved cases of smoke and fire and of their concomitance.

The N-N theory of blocking of one cognition by another if the objects (propositions) cognized are contradictory has been misunderstood by Śrī Harṣa, the celebrated author of *Khaṇḍanakhāṇḍakhāḍya*. He has argued that contradiction is a relation between two, so if one cognition is to be the contradictory of another, both the cognitions must exist. So if doubt is to be contradicted by *tarka*, then both doubt and *tarka* must exist together; rather, the existence of *tarka* as the contradictory of doubt implies the existence of doubt. So *tarka* cannot resolve doubt.

Now this is a misunderstanding of the N-N theory of blocking, as has been pointed out by Gaṅgeśa. When two propositions are contradictory to each other, the two propositions must be there, for example, as objects of cognitions of two different persons. But this does not mean that the two propositions have to be cognized by the same person at the same time. The N-N theory is that if two propositions are contradictory, then the cognition of the one will prevent the cognition of the other. For the blocking of the doubt, it is not necessary that the doubt should exist in the same self; on the contrary, the blocking ensures that the doubt cannot arise at all in the self.

In this connection we have to note another point of the N-N theory. Existence of doubt of deviation is an impediment only to the perception of pervasion (by *sāmānyalakṣaṇa*), but not to an inferential or verbal knowledge of pervasion. For even when one has a doubt about the presence of fire in a room, one can still infer its presence by seeing smoke there. So also when one has a doubt about the existence of a snake in a hole, one can still know it on hearing from a reliable person. The point here is that the presence of doubt of deviation is

an impediment or obstruction only to perceptual cognition of pervasion but neither to inferential cognition of pervasion nor to second-hand knowledge based on authoritative statements of reliable persons.

A final point about the N-N theory of blocking. *Tarka*, being itself a kind of cognition, is known in introspection. But doubt about deviation is blocked by the *tarka* itself, not by its cognition. Moreover, *tarka* by itself does not guarantee that the cognition of pervasion which it helps to produce is, *ipso facto*, true. The truth of the cognition of pervasion is guaranteed not by *tarka*, but by the truth of *tarka*. If the contrary-to-belief conditional is true, and not merely accepted as true by both the opponent and the proponent, then the cognition of pervasion resulting from it is true. This may be regarded as the N-N solution of the *logical problem* of induction of Western philosophers. The cognition of pervasion is true and absolutely certain because pervasion is cognized by a kind of perception on the removal of doubt by *tarka*.

CHAPTER 4

SOME TERMS OF THE TECHNICAL LANGUAGE OF NAVYA-NYĀYA

I. INTRODUCTION

Navya-Nyāya is not just one school among other schools of Indian philosophy. This is primarily because Navya-Nyāya philosophers developed a technical language which became the language of all serious discourse. This language, developed within the language of realistic Vaiśeṣika ontology, was, however, found to be ontologically neutral, and was used not merely in different philosophies—for example, in Advaita Vedānta by Madhusūdana Sarasvatī, in *Advaita Siddhi*; in Pūrva Mīmāṃsā by Khaṇḍadeva, in *Bhāṭṭa-Rahasya*; in Sāṃkhya and Śākta philosophies by P. Tarkaratna, in *Pūrṇima* and *Śaktibhāṣya*; and so forth,¹—but also in grammar, philosophy of language, poetics, law, and other branches of study. We shall have to explain how this language could be so universally used.

In contemporary Western philosophy, the language of symbolic logic has been developed and is used extensively not merely in logic and mathematics, but also in biology and other physical sciences, in grammar (especially the grammar of formal languages), in economics, and only marginally in epistemology, ethics, and law. The discovery and development of the arithmetization of syntax and recursive function theory led to the development of Turing machines and other machine languages, which have been indispensable in computer programming. Thus the thrust and tenor of technical languages developed in the West have been mainly scientific; the application of the languages to poetics or philosophy has been almost absent. This contrast between the technical language of Navya-Nyāya and symbolic logic points to an important difference between the humanities and the sciences, which we discuss below.

The technical language of Navya-Nyāya is nonsymbolic but rigorous, and is a development of Sanskrit, just as Western syntax and semantics must use living languages like English. It is debatable whether Sanskrit was ever a living language, and when Navya-Nyāya

¹ Some of these works are listed in Karl H. Potter, *Bibliography of Indian Philosophy*, rev. ed. vol. 1 of *Encyclopedia of Indian Philosophies*.

developed, it was surely a frozen language. Sanskrit as a frozen language has close affinities with artificially constructed languages as we have them in the West. We must not lose sight of the fact that Sanskrit, from ancient times, had a very rigorous grammar, so much so that Sanskrit grammarians may be regarded as founders of the science of grammar. Sanskrit, as a frozen language, has well-defined and rigorous rules of formation from an alphabet which is phonetically arranged, and the grammatical rules are linearly ordered for scope in Pāṇini's *Aṣṭādhyāyī*. So Navya-Nyāya philosophers took advantage of this feature of Sanskrit in developing their technical language.

Navya-Nyāya language developed so that it could describe structures cognized on various occasions. Thus this language could be used in every sphere where cognition, belief, doubt, and other epistemic and doxastic factors play an essential role. This explains why this language could be used universally in the humanities, where the epistemic factors predominate. In the sciences, however, propositions are stated in total, or nearly total, independence of the knowing subject. Hence Navya-Nyāya language, which is very helpful in the humanities, does not seem to be applicable in the sciences. Although mastery of the Navya-Nyāya language is considered essential for studying medicine (*āyurveda*), still no work of medicine has used this language. Western logic, on the other hand, developed historically so that it could be applied to mathematics and is oriented basically towards science, and is thus inappropriate for use in the humanities.

The Navya-Nyāya language is not a metalanguage in the sense of being a language about a language. It is a language that has developed so that it can describe a cognized structure in terms of the Navya-Nyāya theory. This is different from ordinary Sanskrit, which is used to express cognized structure. Thus the distinction between expressing and describing, in a theoretical language, of cognized structure is fundamental. Lukasiewicz stated that Aristotle used two types of *expressions* for saying the same thing. For example, 'all A is B' or 'B belongs to all A', and 'B is predicated of all A' are used indiscriminately.² Yet these two types of expressions are radically different. 'All A is B' and 'B belongs to all A' are expressions of

² Jan Lukasiewicz, *Aristotle's Syllogistic from the Standpoint of Modern Logic*, 2nd ed., en1., pp. 2-3.

cognized structure, but 'B is predicated of all A' is of a different type containing 'predicated of', which is a theoretical term of logic or grammar, and is not an expression of the object language of the earlier expressions. In other words, while 'All A is B' expresses a factual situation, 'B is predicated of all A' cannot do so, for the relation 'being predicated of' is not a factual relation, but is a grammatical or epistemic one. Thus this sentence analysed a fact as cognized, or a statement made according to rules of grammar. This latter interpretation makes it easy to make this sentence a sentence of a metalanguage, of grammar. According to Navya-Nyāya philosophers, 'B is predicated of all A' is a description or analysis, in terms of a theory (logic or grammar), of what 'All A is B' or 'B belongs to all A' expresses. Hence they all belong to the same *level* of expression; they are about objects. We shall now explain the Navya-Nyāya theory in terms of which all cognized structures are analysed and rigorously described.

2. THE NAVYA-NYĀYA THEORY

Qualificative cognitions are cognitions the objects of which are relational complexes of the form aRb . We now introduce three epistemic definitions :

Definition 1. Qualificand of a qualificative cognition : a in the cognized structure aRb is called '*the qualificand of the cognition*', as well as '*the qualificand of b*'.

Definition 2. Qualifier (mode) of a qualificative cognition : b in the cognized structure aRb is called '*the qualifier (mode) of the cognition*' as well as '*the qualifier (mode) of a*'.

Definition 3. Qualification of a qualificative cognition : R in the cognized structure aRb is called '*the qualification of the cognition*'.

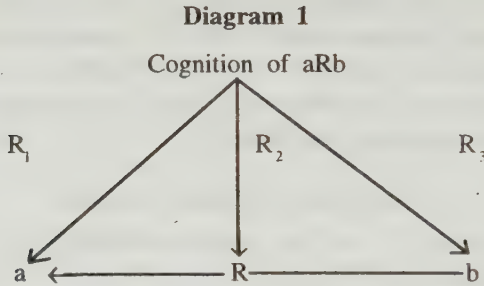
This means that every sentence expressing a qualificative cognition has to be given a *de re* interpretation of all the elements, a , R and b . All these elements are real objects, and not merely a , the qualificand of the qualificative cognition. Every qualificative cognition of a structure of the form aRb is interpreted in Navya-Nyāya theory as the cognition of b in a by R . Thus Navya-Nyāya theory is that every qualificative cognition has to be analysed as a cognition of something *in* something, of something *possessing* something, of something *as* something, that is, something cognized under the mode of something. In the Western tradition generally, every proposition,

including relational propositions of the form aRb , is interpreted as *assertions* and is distinguished radically from a term. In Navya-Nyāya theory, a , as well as the structure aRb , is regarded as a complex object, and not as a proposition or fact in the sense of the *Tractatus*. We now introduce two ontological definitions.

Definition 4. Property (superstratum) : b is a *property (superstratum)* of a in the relation R in aRb .

Definition 5. Property-possessor (substratum, locus) : a is the *property-possessor (substratum, locus)* of b in the relation R in aRb .

In a cognized structure of the form aRb , one cognition is related to the three elements by three characteristic relations (Diagram 1).



The converse relations, $\bar{R}_1, \bar{R}_2, \bar{R}_3$, are relations of the objective factors to the cognition.

3. THE NAVYA-NYĀYA TECHNIQUE

(i) Abstraction

Usually in Sanskrit, as in English, abstract terms are formed from given concrete terms, and concrete terms from given abstract terms. Thus, from the concrete terms "wise," "honest," and "man" we have the following abstract term by adding the appropriate abstraction suffixes, making appropriate grammatical changes in the stem where necessary : "wis-dom," "honest-y", "man-ness". So also with given abstract terms.

The abstraction suffix is '—tva' or its grammatical variant '—tā' (translated as '—ness'), and the concretization suffix is '—vat' or '—mat' (translated as '—possessing'). Abstraction and concretization are inverse processes in the sense that

AC 1. (t-ness)-possessing = t

(t possessing)-ness= t

where 't' is any term whatsoever, corresponding to the law of symbolic logic :

AW 2. $[(\lambda x)Fx] = F$

(ii) Determiner-Determined

In aRb , a is the locus of b (definition 5), and therefore *has the property of being the locus (locus-ness) resident in*, that is, belonging to, a . So also b is the superstratum of a in the relation R (definition 4), and has the property *being the superstratum (superstratum-ness)*. Locusness of a is *determined by* the superstratum-ness resident in b , is :

$(\lambda x) xRy$ determines (or is determined by) $(\lambda y) Rxy$.

In thus symbolizing the Navya-Nyāya concept we have to use 'R' in both the abstracts. But in Navya-Nyāya technical language R goes with the successor of R , but not with the predecessor.

The structure aRb , which is interpreted as b in a by R , is described by S1 in theoretical terms of the Navya-Nyāya system thus :

S1 R is the limiting relation of superstratum-ness resident in b , which superstratum-ness determines the locus-ness in a .

We now explain the concepts of limiting properties and limiting relations, that is, of limitors.

4 THE CONCEPT OF LIMITOR

Navya-Nyāya, in developing its theory of cognition, uses the concept of limiting property and limiting relations almost continuously. In ontology, Navya-Nyāya accepts extensionality of classes, relations, and so on. If two properties belong to, are located in, exactly the same objects, then they are ontologically identical. But this ontological identity cannot ensure the identity of cognized structures. One and the same object may be cognized differently, that is, through different modes of cognition. Now this theory that the same object can be cognized in and through different modes has been challenged by many philosophers. Findlay, for example, argues as follows :

"The same object can be referred to in many ways; we can think of the same city as the birth-place of Mozart or as the city which stands on the site of ancient Juvavum; the difference between the two ideas which we thus form of one and the same object, must lie in the content of those ideas. The weakness of this argument lies in the fact

that it seems fairly clear that there is some difference even in the objects of the two ideas; if they concern the same city, they certainly also introduce us to other objects and relations which would suffice to distinguish them. For Mozart and ancient Juvavum are as much objects as the modern city of Salzburg."³

The reply to this objection of Findlay is to point out that the two ideas (cognized objects, in Navya-Nyāya terminology) which refer to the same object are ontologically the same, since the identity statement 'the birth-place of Mozart = the city which stands on the site of ancient Juvavum' is a true statement. The truth in Findlay's objection can be expressed in Navya-Nyāya theory of cognition in this way. The cognition of the birthplace of Mozart has the city of Salzburg as its qualificand, and the property *being the birthplace of Mozart* as its qualifier or mode; the cognition of the city which stands on the site of ancient Juvavum has as its qualificand the same city, and as its qualifier the property of being the city which stands on the site of ancient Juvavum. Thus both cognitions have the same qualificand, but they differ in their qualifiers or modes of cognition. Thus, according to Navya-Nyāya, the same object, that is, the same qualificand, may be cognized through different modes. These modes are properties which belong to objects and are as objective as the objects themselves.

This theory that the same qualificand may be cognized in and through different modes has a parallel in the theory of *ratio* of the fourteenth century logician Jean Burdian :

"All the same the sense, or as Burdian calls it *ratio*, given us by an object expression really is somehow involved when the verbal is an intentional one; Buridan says the object expression appellat suam-rationem where we may perhaps render the term 'appellat' (perhaps the most obscurely and multifariously employed of all medieval semantic technicalities) by saying the expression 'calls up' or 'evokes' its own *ratio*. Buridan's main point is in any case clear : that the truth-value of a sentence whose verbal is an intentional one may be changed if we change the *ratio*, the sense, given in the object expression still relate to the same thing the world."⁴

³ J. N., Findlay, *Meinong's Theory of Objects and Values*, 2nd ed., p. 12.

⁴ P. Geach, "A Medieval Discussion of Intentionality," in *Logic, Methodology and Philosophy of Science*, ed. Yehoshua Bar-Hillel. p. 426.

Buridan here talks of *ratio*, that is, of aspects of objects referred to by expressions. Although Navya-Nyāya also formulates a theory of word meaning according to which a word refers to an object only under a specific mode or aspect, still Navya-Nyāya generalizes this distinction between an object and an aspect to all cognitions. The Navya-Nyāya philosophers hold the theory that all cognitions involving language essentially are a special kind of cognitions. Neither perception nor even inference as a process of knowing involves any language. When one wants to communicate to others what one has cognized in perception and in inference, one uses language. In these cases, one needs language only in order to communicate one's cognitions or to discuss their truth or falsity or their nature with others. With this modification and generalization, the Navya-Nyāya concept of mode is much wider than Buridan's conception of *ratio*.

The word 'limitor' has been used in Navya-Nyāya in various senses. We shall explain here two most important uses of this important concept. (a) *In the first sense*, the word 'limitor' is used to denote the mode of cognition of an object. Thus, when one cognizes a jar under the mode of jar-ness, jar-ness becomes the limitor of the qualificand-ness resident in the jar. This simply means that the thing jar has become the qualificand of the cognition only in so far as it possesses jar-ness that is, in so far as it is an instance of the universal jar-ness. As Navya-Nyāya philosophers deal with cognitions and as cognitions are transparent to introspection, there can be no doubt about which mode has been manifest in a particular cognition. Thus the limiting property of the qualificand-ness of any cognition is always infallibly known to the knower.

The difficulty arises when one has to determine the limitor from the verbal expression of the cognition; for example, when one cognizes a particular jar as an instance of the universal jar-ness, what one says is '(a) jar'. Now the word 'jar' refers to the thing jar under the mode of jar-ness. Thus jar-ness is the mode of presentation of the referent of 'jar', namely, jars. One may cognize the same thing, namely, the jar, as something containing water. If to express this cognition one uses the word 'the jar', then, of course, the mode of cognition is not the mode of presentation of the referent of the word 'the jar'. For the mode of presentation of the referent of a word is conventionally fixed, where a cognition of a thing may have different qualifiers at different times. As the linguistic expression of a cognition does not always give a foolproof method of determining the mode of cognition of its object, Navya-Nyāya has devised a technical

language which is adequate to express the limiting properties as well as the limiting relations of cognitions. Thus, when one cognizes a particular jar as containing water, this cognition is described as follows : The cognition which has the thing jar as its qualificand and the property of containing water as its qualifier.

When one cognizes, that is, perceives, a particular brown jar and expresses this cognition by '(a) brown jar', this cognition is described in the technical language of Navya-Nyāya thus :

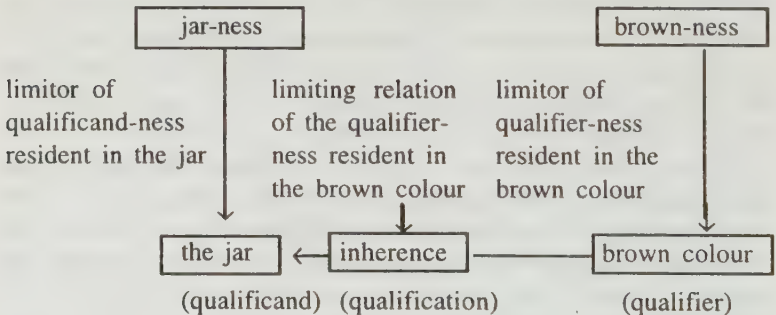
First step. The cognition the qualificand of which is the (thing) jar and the qualifier of which is brown colour.

But again the (thing) jar has been cognized as a jar, that is, under the mode of jar-ness, and the brown colour has been cognized under the mode of brown-ness. Hence the entire cognition stated in the technical language of Navya-Nyāya becomes :

Second step. The cognition having its qualifier-ness, which is limited by brown-ness and the relation of inherence, and which determines the qualificand-ness limited by jar-ness.

This simply means that the thing jar has become the qualificand of the cognition only in so far as it has jar-ness, and the brown colour has become its qualifier only in so far as brown-ness inheres in it. This may be explained by means of Diagram 2 :

Diagram 2



The qualificand-ness resident in the jar is determined by the qualifier-ness resident in the brown colour. This is because the jar is the qualificand of the qualifier, the brown colour. The qualifier-ness resident in the brown colour = the qualifier-ness limited by brown-ness and inherence. The qualificand-ness resident in the jar = the qualificandness limited by jar-ness. Hence the entire cognition is the cognition the qualifier-ness of which is limited by brown-ness and

inherence and which determines the qualificand-ness limited by jar-ness.

An important point to be noted here is that although the mode of cognition becomes the limiter, it is a limiter only of a relational property residing or located in the object referred to by the word. Any object becomes the qualificand or the qualifier of a cognition only under some mode. This mode is the limiter of qualificand-ness or qualifier-ness, but not of the qualificand or of the qualifier. So, also, when an object is the cause of another object, the modes under which the cause and the effect are cognized become the limitors, not of the cause and the effect, but of the properties of being the cause (cause-ness) and the property of being the effect (effect-ness). Thus, generally, when any object, *a*, is related to another object, *b*, by a relation *R*, *a* has the property of being the first term of *R* and *b* the property of being the second term of *R*. The modes under which the objects *a* and *b* are cognized become the limitors of *these properties*. Thus we can never have a definiendum like 'xRy' but only something like : 'x cognized under the mode F is related to y cognized under the mode G by the relation R'. This explains the function of the limiter. In *aRb*, *a* has the property being the predecessor (predecessor-ness), and *b* the property of the successor-ness, of *R*. In *cRb*, *c* has predecessor-ness, and *b* the successor-ness, of *R*. How can one distinguish the predecessor-ness resident in *a* from the predecessor-ness resident in *c*, especially when *R* is the same in both cases? The difference in the predecessor-nesses resident in *a* and *c* is due to the *limitors* of the two predecessor-nesses. In the first case, the predecessor-ness is limited by *a*-ness (this-ness), and in the second case it is limited by *c*-ness (that-ness). Thus the limitors differentiate between predecessor-nesses and successor-nesses residing in different objects.

What is limited by the limitors may be of two kinds. The word, *avacchinna* (limited, determined) is used not only for a relational abstract which is limited by the mode of cognition of the term related, but also for a "thing's nature which is determined" by the mode of cognition of the thing. "The nature determined" by the mode of cognition is "forma cum subject represented by the concrete concept of the things"; the mode of cognition is "the forma sine subjecto represented by the abstract concept of the thing".⁵ For example, water

⁵ C. Goekoop, *The Logic of Invariable Concomitance in the Tattvacirtāmaṇi*, p. 13.

cognized as water, that is under the mode of waterness, is said to be limited by water-ness. In 'absence of (a) jar' there is an ambiguity; the meaning may be 'absence of a particular jar' or 'absence of all jars'. This ambiguity is resolved by use of limitors in a different sense, which we shall explain presently. The point is that the sense of limitor as a mode of cognition does not show the quantity of what is cognized.

This sense of 'limitor' as the mode under which an object is cognized so that it can be related to another object does not give us any indication of the quantity of the cognition. Thus to say 'cognized under the mode of fire-ness', that is, 'limited by fire-ness' (*vahnitvâ 'vacchinna*), does not give us any indication whether the object cognized is just one particular fire or all fires. Here an adjective of quantity like 'all' has to be added.

(b) Now there is a second sense of 'limitor', in which it is used to indicate quantity of cognition. There are two types of reasons, ontological and epistemic, for admitting limitors of relational properties over and above the relational properties themselves. It is only the epistemic reason which explains here how the concept of limitor is used to show quantification. In this respect, the Navya-Nyāya theory of limitors is fundamentally different from Buridan's theory of *ratio*. Now we explain the two types of reasons, ontological and epistemic, for admitting limitors of counterpositive--ness.⁶ These reasons may be used *mutatis mutandis* in other cases of relational properties.

(i) Ontological Reasons

The sentence or the proposition 'the chair is on the floor' is contradicted by 'the chair is not on the floor'. This relation of contradiction between the two propositions or sentences is, according to Navya-Nyāya, grounded in or based on a relation of incompatibility between two entities, the chair and the absence of the chair. According to Navya-Nyāya, a cognition of the form '*a* is not *b*', or '*a* is not in *b*', is a cognition of negation of *b* in *a*. Now to say that *b* is absent from *a* requires that we specify what it is for *b* to be present, certainly not in *a*, but in some other object, say *c*; unless it is specified what is for *b* to be present, we cannot say what it is for *b* to be absent. Now to be present *b* has to be related by a specific relation to *c*. To say that *b* is not present in *a* will necessarily involve the relation in which *a* is present in *c*; *b* is not present in *a* in the way it is present

⁶ Kalipada Tarkacharya, *Navya-Nyāya-Bhāṣā-Pradīpa*, pp. 33ff.

in *c*. This relation is the limiting relation of the counterpositiveness resident in *b* and is determining the locus-ness resident in *a*. If we do not include this specific relation in which *b* is said to be present in *c* in this case, then there cannot be any incompatibility between presence and absence of *b* and no contradiction between the corresponding propositions. For example, the two propositions 'the chair is on the floor' and 'the chair is not on the floor' will not be contradictory to each other if 'being on the floor' in the two propositions is understood differently. Even though the chair is in contact with the floor, still the chair will not be related to the floor by the relation in which the chair is related to its parts. The chair inheres in its parts but cannot inhere in the floor because the floor is not a part of the chair. So both the propositions 'the chair is on the floor' (by contact) and 'the chair is not on the floor' (say, by inherence) will both be true and hence not contradictory. Navya-Nyāya, therefore, postulates that whenever a cognition of negation is considered, it is necessary to take into consideration this specific relation by which the counterpositive is to be present somewhere.

The ontological reason for admitting a limiting property of the counterpositive-ness resident in the counterpositive of a negation is this : consider the proposition 'there is a substance'. If we do not specify here the mode under which a substance is to be cognized, the two propositions 'there is a jar on the ground' and 'there is no chair on the ground' will not be contradictory even though both jars and chairs are substances. It may be suggested here that this difficulty may be avoided by stipulating that what is said to be present on the ground must be the same as that which is said to be absent there. But this answer without bringing in the concept of the limiting property of counterpositive-ness—that is, the concept of the mode under which the counterpositive of a negation is cognized—is inadequate from the Nyāya point of view. This is because, in ontology, Navya-Nyāya accepts the principle that an entity qualified by some other entity is ontologically identical with the unqualified entity. For example, existence (*sattā*) inheres in three categories : substance, quality, and motion. Now this existence qualified by exclusion from quality and motion is ontologically the same as existence pure and simple. Yet existence qualified by exclusion from quality and motion is not present in quality and motion where existence is present. Thus quality and motion are the loci of both existence and absence of existence. This violates the rule of

incompatibility between an object and its negation. The rule is that where the object is present it cannot be also absent, and vice versa. Existence which is not present in quality and motion is existence qualified by exclusion from quality and motion. But because the qualified existence is ontologically the same as unqualified existence, that is, existence pure and simple, existence and nonexistence cease to be incompatible. It is, therefore, necessary to introduce the concept of limitor of counterpositive-ness, which is the mode under which the counterpositive of a negation is cognized⁷ and which is, therefore, an epistemic concept. Thus even though qualified and unqualified existence be ontologically identical, still, in cognition, they are cognized differently through different modes of cognition. Thus, in order to ensure the relation of incompatibility between an object and its negation, the notion of the limiting property of counterpositive-ness is necessary.

(ii) Epistemological Reasons

According to Navya-Nyāya a cognition of an object blocks or prevents the cognition of its absence under certain conditions. Now this blocking of one cognition by another is possible only when the limiting relation of counterpositive-ness resident in the counterpositive and the limiting property are essentially involved in the cognitions. Just as without these limitors there is no incompatibility between an object and its negation, so also without these limitors there will be no blocking of one cognition by another.

Now we explain how the concept of limitor is used in Navya-Nyāya to specify the quantity—universality or particularity—of cognitions. For this purpose the word 'limitor' is used in an altogether new sense. This sense is that the limiting property is coextensive with the relational property that is limited by it.⁸ For example, in the negation of a jar, if the counterpositive-ness resident in the jar is limited by jar-ness then it will be the negation of jar-in-general or negation of all jars. But if the counterpositive-ness is limited by (this-jar)-ness, then the negation will be the negation of this jar; this is negation of a particular jar. As the limiting property and the relational property that is limited by it are coextensive, wherever the

⁷ "Yas'ca pratiyogī bhavati, tatra viśeṣaṇatayā pratiyamāno 'sādhāraṇo dharmah tad-gata-pratiyogitāyā vacchedako bhavati phalitārthah" (Navya-Nyāya Bhāṣā-Pradīpah, P. 34).

⁸ Anyūnā 'natirikta-vṛtti-dharmasyaivā vacchedakatvam NK., p. 84.

limiting property is present the limited property also is present and vice versa. So also in other cases of the limitor—limitor of probans-ness or probandum-ness, or qualificand-ness, qualifier-ness, and so on.

Using limitors to indicate the quantity of a cognized structure (according to Western logic, the proposition) differentiates the Indian logic of quantification from Western logic in a fundamental way. In Aristotelian logic, as also in modern symbolic logic, propositions or sentences are classified into four different *forms*—A, E, I, O—by quantity and quality. Universal propositions in Western logic are those which are quantified by the use of words like 'all', 'every', 'any', 'no', and so on. The quality, especially negative quality, is indicated by using words like 'no', 'not', or 'never', and so on. Now, according to Navya-Nyāya, anything indicated by words occurring in a sentence will enter into its *content* and cannot belong to its *form*. That is why, according to Navya-Nyāya, the so-called quality of a proposition or a sentence which has to be indicated by the presence or absence of a negative particle cannot be a matter of form. So also if quantity in sentences is indicated by using words like 'all', 'some', and so on, then quantity will also be included in the content of the meaning of the sentences but cannot belong to their form. Accordingly, Navya-Nyāya, which deals with cognitions, rather than with propositions or sentences, sees a fundamental difference between the quantity and the quality of the content cognized. The quantity, like universality, particularity, cannot be expressed by any words occurring in a sentence which expresses the cognition, or rather the object of the cognition. Words occurring in such sentences refer to objects and are cognized as referents. But according to Navya-Nyāya, a word can refer to an object only if the object is presented under a specific mode, which must be a property belonging to the object and is the cause for the application of the word to the object. This mode of presentation, although meant by the word, is never its referent; it is the qualifier of the qualificative cognition resulting from hearing the word, and the mode of presentation of the referent of the word is the qualifier. This mode, under which falls the referent of a word, is called the limitor of being referent of the word. Now this limitor is coextensive with the property of being referred to by the word. Whatever is referred to by the word has this property, and whatever has this property is a referent of the word. Thus, the concept of limiting property in the sense of a coextensive property of what is limited

reveals or manifests the quantity of the structure cognized.

It is to be noted here that a limiting property or relation in this sense is not to be identified with what gets manifested in cognition. This is because even a property which is not a mode of cognition can become a limitor in that cognition. A heavier property, even though it is manifested as a mode, cannot be a limitor if there is a lighter property coextensive with it. When a person hears a sentence uttered by a speaker, he, unlike the speaker himself, is not certain about the limitor. It is for this reason, that is, to avoid the uncertainty and vagueness in ordinary language where adjective of quantity is not used, that Navya-Nyāya has developed a technical language using 'limiting property', 'limiting relation', 'determiner', 'determined', and so on to make explicit that which was not explicit in the sentence. Thus, Navya-Nyāya language is not a metalanguage in the sense of being a language about another language, the object language. The technical language is a device to state explicitly what has been left unsaid in the ordinary sentence.

In Western logic, a universal sentence is analysed into a propositional function containing at least one free variable, which becomes bound by the quantifier. The quantifier in such logics performs three different functions : binding, abstracting, and quantifying. The operation of binding a variable is merely to delete or cancel it from the expression. Thus we have the equivalence :

$$(\lambda x) Fx = F$$

The binding of a variable thus results in abstraction in the sense that the propositional function yields a property. The third function, namely, that of quantifying a propositional function, is really to say something about the property. A universal quantifier says that the property is universal; an existential quantifier says that the property is satisfiable. Thus combinatory logic, which uses functions as arguments of functions, dispenses with the use of variables. Quantification, therefore, involves a higher level of thought.

In Navya-Nyāya, quantification is a matter of a way of cognizing objects. To cognize the object in one way, that is, where the limiting property is general, is to cognize the object universally. When the limiting property is a special property, the cognized structure is particular. We shall first explain here the meaning of 'all' and 'a' in Navya-Nyāya, and then show why universality and particularity cannot be indicated by these words.

(iii) *Meaning of 'All'*

'All' may be used as an adjective of the subject expression or of the predicate expression, which must be a count noun. "All objects are knowable," and "Time has all properties" are the examples of the two cases.

The first case. The referent of 'all', is that which is without remainder. But this requires explanation of 'being without remainder'. The subject is cognized as having the predicate totally in such a case. This simply means that everything which is cognized under the mode of the subject term possesses the property referred to by the predicate term. (The predicate has to be distinguished from the predicate expression. The normal form of an expression of a cognition in Navya-Nyāya is *a* as *b*-possessing. The predicate expression is '*b*-possessing', but the predicate is *b*, not '*b*'. Thus the sentence 'Socrates is wise' has to be transformed into 'Socrates as wisdom-possessing' where the predicate expression is 'wisdom-possessing' but the predicate is wisdom).

Gadādhara explains the meaning of 'all' as an adjective of the subject (the referent of a count noun) in the following way. According to him the referent of 'all' as an adjective of the subject is whatever is cognized under the mode of many-ness (a number), which pervades the mode of presentation of the referents of the subject term and is pervaded by the predicate. In the sentence 'all substances are knowable', the subject is substances and the mode of their presentation by the word 'substance' is substancehood. The word 'all' here means whatever possesses such a number pervades substancehood, which is the mode of presentation of the referents of the subject term. Substancehood is present in all individual substances; therefore the number or plurality may be present at least in all substances in order that the plurality be the pervader of substancehood. Now this plurality, which is a number, has to be pervaded by knowability, which is the predicate in the sentence. This means that every locus of this plurality must also be a locus of knowability. Thus, the sentence 'all substances are knowable' means that wherever there is substancehood there is knowability. (Gadādhara's interpretation of 'all' as an adjective of the subject term of the relation of pervasion between three properties amounts really to transforming a universal sentence into a conditional one. This is because of the Nyāya interpretation of pervasion as a relation which is not a necessary relation. To say that *a* pervades *b* is to say that whatever possesses *b*-ness possesses *a*-ness.

not that whatever possesses *b*-ness *must* possess *a*-ness).

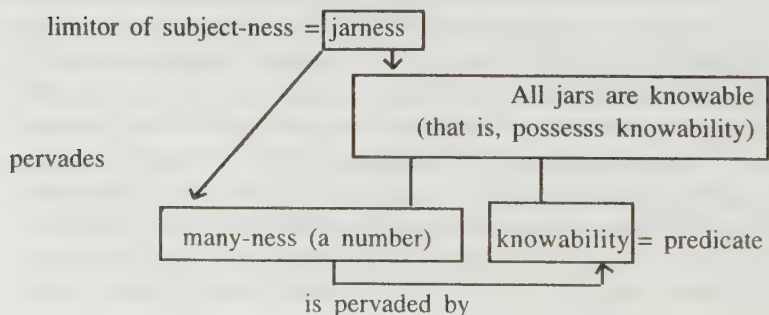
To say that all substances are knowable is not to say that there are no objects other than substances which do not have knowability. The use of 'all' does not preclude the possibility of the predicate belonging to things other than the referents of the subject term. What is precluded is that the predicate may not belong to all the referents of the subject term. This possibility is precluded by the stipulation that the plurality which is the mode of presentation of the referents of 'all' must be pervaded by the predicate.

If the condition, that the plurality or many-ness which is the mode of presentation of the referent of 'all', is not pervaded by the predicate, then the predicate will not be present in all objects which are the subject of the sentence. For example, we cannot say correctly that all jars are blue, for the plurality which qualifies jars is not pervaded by the colour blue; wherever jar-ness is present, the plurality is present, but wherever this plurality is present, blue colour is not present. So we can only say that some jars are blue.

If the condition, that the many-ness which is the mode of presentation of referents of 'all' be the pervader of the mode of presentation of the subject, is not given, then, too, the use of 'all' will be unjustified. In the sentence 'all jars possess blue colour', the blue colour is the predicate; if the many-ness is pervaded by this predicate, then wherever this many-ness is present, blue colour will be present, and all and only blue jars will be the loci of this many-ness. But this cannot be the meaning of 'all jars are blue'. Hence the further condition, that the many-ness which is the mode of presentation of the referents of 'all' has to pervade the mode of presentation of the subject, is necessary.

We may represent this interpretation of 'all' in Diagram 3.

Diagram 3



This means that wherever jar-ness is located the number is located, and wherever the number is located knowability is located.

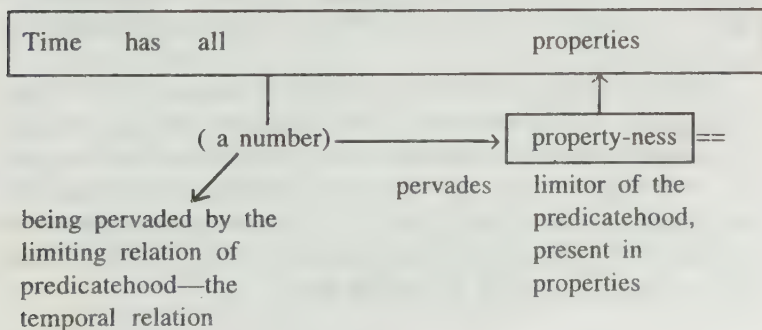
It should be noted here that the referent of 'all' being defined in terms of pervasion, pervasion itself cannot be explained in terms of 'all'. In Western logic, where the universal or the existential quantifier is regarded as basic, pervasion can be defined in terms of the universal quantifier thus :

Definition of pervasion : $s \text{ pervades } h \iff (x) (xR_1h \supset xR_2s)$.

But according to Navya-Nyāya philosophers, it is in terms of the relation of pervasion by which the meaning of 'all' is to be defined.

The second case. In the case of 'all' being an adjective of the predicate expression, its referents will be whatever has plurality (many-ness), pervading the mode of the predicate and being pervaded by the relevant relation to the subject. In the sentence 'time possesses all properties', the predicate is property, and its mode is *being a property*. A property is something that *is in* another object. Being such a property is pervaded by the plurality belonging to all properties. This plurality is also present in all properties in which the mode of the predicate (being a property) is present; so the plurality pervades the mode of the predicate. Again, all properties are in time and hence are related to time. So all individual properties are such that the plurality (of all properties) is present in them, and being a property is also present in them, and being related to time is also present in them. Hence all the conditions of determining the referent of 'all' are satisfied in this case. Diagram 4 will make the meaning clear.

Diagram 4



Wherever property-ness is located. (that is, whatever is a property) the number is located. Whatever the number is located in is in time (that is, is related to the substance which is time by the temporal relation). From this it follows that whatever is a property is in time. According to Gadādhara, this is the meaning of 'Time has all properties'.

(iv) *Meaning of 'One'*

If it is said that the meaning of 'one' is whatever possesses one-ness, then it will be quite proper to say that one man is present in the room when there are many others in the room. For each individual person will be one person, but according to Navya-Nyāya, this will be a false statement in this circumstance. In Sanskrit idiom, 'one' means 'one and only one'. The meaning of 'one' in this sense is explained by Gadādhara in the following way. If 'one' is an adjective of the subject expression, then it refers to whatever *possesses* one-ness, which is not the counterpositive of difference present in the referent of the subject expression, which is qualified by the predicate. If there are two persons, A and B, in the room, then A has one-ness, but A as well as B is qualified by the predicate (being in the room), and A is different from B; A *is the counterpositive of* difference from B, who is also a referent of the subject expression "B" and is in the room. So we cannot say about A that one man is in the room.

So also in the case of 'one' as an adjective of the predicate expression. 'One' in such a sentence will refer to whatever has one-ness, which is not a counterpositive of difference present in the predicate, which is related to whatever has the predicate as its property. In the case of two-eyed persons, we cannot say that they have one eye, for the one-ness as qualifying the predicate, eyes, say, A and B, cannot be said to belong to A, or to B, alone. For A is counterpositive of difference from B, which is the other eye, related to (belonging to) such persons.

It becomes clear now why Navya-Nyāya cannot use 'all' to indicate quantity of cognitions. For to understand the meaning of all, it is necessary to use the cognition of pervasion, which, therefore, cannot be indicated by 'all'. But the concept of pervasion itself involves universality, so universality has to be understood independently of the use of 'all'. This, as has been explained above, is done by using the concept of limitor in the second sense.

5. USE OF LIMITORS IN THE NAVYA-NYĀYA DEFINITION OF PERVASION

Navya-Nyāya uses limiting properties and limiting relations almost constantly, especially in definitions. Limitors are mainly used for two purposes, both of which are connected with the notion of a mode of presentation of an object in a cognition. One such use is to explain why objects which are ontologically identical cannot be used interchangeably in a cognitive context like an inference. The other use is to determine the quantity, universality, or otherwise of the objects of cognition by their mode of presentation in cognition. I shall now explain these two uses of limitors by examining a definition of pervasion as given in Viśvanātha.⁹

Pervasion is such a relation between the pervader and the pervaded that the pervaded becomes an unfailing mark of the pervader. This is possible if and only if the pervaded (*h*) does not occur where the pervader(*s*) does not occur. This may be analysed differently in terms of different types of negation admitted in Navya-Nyāya. The definition of pervasion that we shall discuss here is in terms of absence and difference. Initially it may be stated thus :

(1) Pervasion of *h* by *s* == the absence of *h* from what is different from a locus of *s* (the mark (*h*) must not occur where *s* does not occur).

This initial statement is then further analysed as

(2) Pervasion of *h* by *s* == negation of occurrence of *h* determined by what possesses difference the counterpositive of which is a locus of *s*.

That this definition is correct is shown by applying it to an example. Smoke is pervaded by fire, invariably goes with fire, and is, therefore, an unfailing mark of fire. Now smoke does not occur where fire does not occur. The locus where fire does not occur is necessarily different from the locus where fire occurs.

S If *x* is different from *y*, then *x* has difference from *y*.

This is stated in Navya-Nyāya terminology as :

SN *x* has difference the counterpositive of which is *y*.

This is because of the definition :

⁹ *Sādhyatā-’vacchedaka-sambandhā-’vacchinna-sādhyavatā-’vacchinna-pratīyogitāka-bhedavan-nirūpita-hetutā-’vacchedaka-sambandhā-’vacchinna-hetutā-’vacchedakā-’vacchinna-vṛttitativā-’vacchinna-pratīyogitāka-vṛttitivā-bhāvo-vyāptih.* Sastri, *Bhāṣāparicchedah.*, p. 333).

DD1 x is different from $y = y$ is counterpositive of difference resident in x ; or, x has difference the counterpositive of which is y .

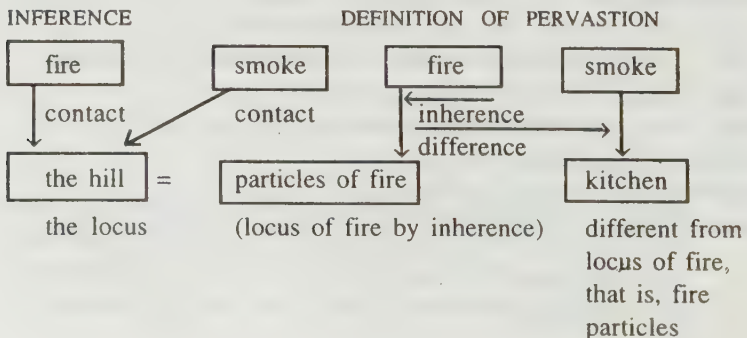
This definition of pervasion seems to be correct as it does not apply to the case which is not a case of pervasion. If someone infers that there is smoke, because there is fire, the smoke (s) becomes the pervader, and fire the pervaded (h). This is not a case of pervasion, for there is at least one instance where fire is present but smoke is not (say, a red-hot iron ball). The definition of pervasion, too, is not applicable to this wrong case.

But the definition as it stands is not adequate. The first insertion here is that in understanding a locus of s in 'different from a locus of s ' in (1), we have to take that relation which is the limiting relation of s -ness in the inference. Why this is necessary is explained as follows.

Smoke is really pervaded by fire; hence the definition of pervasion ought to apply to this case. But if the relation in which locus of s is to be taken is not specified, then the definition will fail to apply to this case and will be too narrow. Without this identification of the limiting relation of s -ness with the relation in which s is to be located in the locus, by 'locus of fire' we may understand its particles, for fire is located in its particles by inference. The kitchen, for example, becomes different from this locus of s , but smoke is present there. Hence the definition of pervasion does not apply here.

The defect is remedied by the said identification of the two relations. When one infers fire on a hill, one infers that fire occurs on the hill in the relation of contact, not inference. Hence, when one understands 'locus of fire', one must understand an object where fire occurs by the relation of contact. This may be explained by Diagram 5.

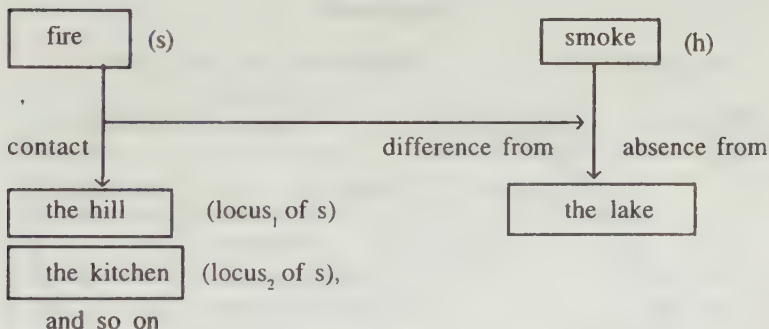
Diagram 5



The difficulty is, therefore, resolved by stipulating that the relation of fire to its locus must be identical in both the cases. Since in Diagram 5 the two relations are not the same, this case does not show that the definition of pervasion is too narrow.

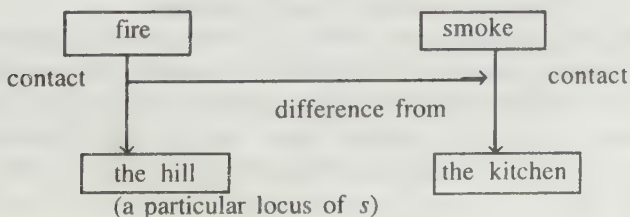
The next insertion is of a limiting property having the function of a universal quantifier. The *h* must not be present where *s* is not present. This means that *h* must not be present in *any* locus where *s* is absent. This again means that the *h* must not be present in a locus which is different from each and every locus of *s*. This point may be explained by Diagram 6.

Diagram 6



This means, in Navya-Nyāya terminology, that the counterpositive of difference must be *all loci of s*. This is achieved in Navya-Nyāya terminology by saying that the counterpositive-ness resident in the counterpositive must be limited by mere locus-ness of *s*; that is, the counterpositive of difference has to be cognized under the mode of *being just a locus of s*. The necessity of this insertion is proved negatively by showing what would follow if it is not made (Diagram 7).

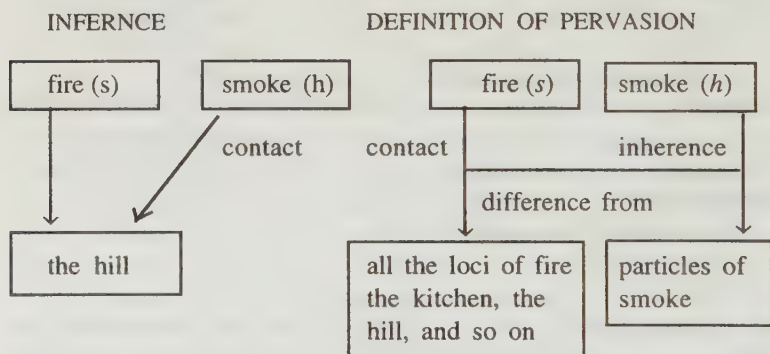
Diagram 7



Understanding by 'difference from a locus of *s*' the difference from a particular locus, say, the hill, we can take the kitchen as different from this particular locus of fire, where smoke is present. Thus the definition of pervasion without this insertion will fail to apply to the smoke-fire case, and will be too narrow. This insertion makes explicit what will count as different from a locus of *s*, what will be the counterpositive of the difference from a locus of *s*.

A third insertion is necessary to explain the sense in which the *h* must not be present in a locus of absence of *s*. It is pointed out that the limiting relation of *h* in the inference must be the same as the limiting relation of counterpositive-ness resident in *h*. This may be explained by Diagram 8.

Diagram 8



In the inference in Diagram 8, smoke on the hill has become the mark (*h*) of fire (*s*) by being in contact with the hill. But the attempt to show that the definition of pervasion is too narrow is based on taking a different relation, in which smoke is present in its particles, which are different from every locus of fire by contact. So all other conditions have been satisfied, but this new condition in which smoke is to be taken as being absent has not. Hence this attempt to show that the definition is too narrow does not succeed.

The final insertion in the definition shows that substitutivity of ontological identity does not hold in inference. The example given by Viśvanātha is based on the Navya-Nyāya theory of the ontological identity between a qualified object and the object as unqualified. Thus existence is a universal which inheres in the first three categories, namely, substance, quality, and motion. Yet existence as ex-

cluded from quality and motion inheres only in substance. In Navya-Nyāya terminology, existence qualified by exclusion from quality and motion inheres only in substance, but because existence so qualified and existence pure and simple are ontologically identical, a valid inference would become invalid if this identity is allowed. This inference is this :

Inference : This is a substance, for it possesses existence qualified by exclusion from quality and motion.

This valid inference will become invalid if, in place of qualified existence, we write existence pure and simple. To prevent this sort of substitution, Viśvanātha points out that ontological identity is not sufficient; what is necessary is to consider the mode under which the *h* is cognized. This may be explained by Diagram 9, and the inference reconstructed in Diagram 10.

Diagram 9

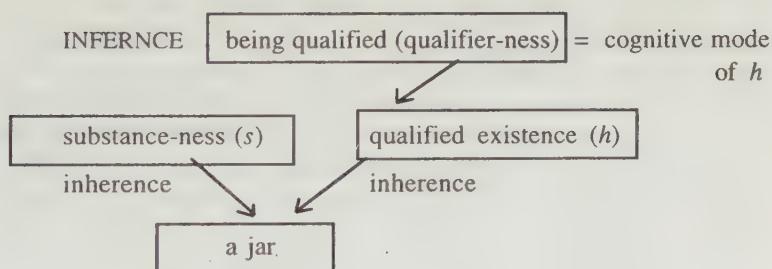
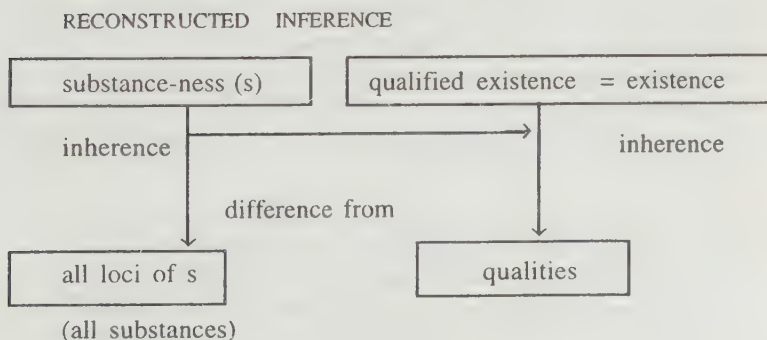


Diagram 10



In Diagram 10 all the previous conditions have been fulfilled : (a) locus of *s* in the same relation as in the inference; (b) difference from every such locus of *s*;; and (c) the relation in which *h* functions in the inference, which is the same relation, namely, inherence. Yet the *h*, qualified existence being ontologically identical with pure existence, inheres in what is different from every locus of *s*. Viśvanātha's suggested solution is that ontological identity is not sufficient to justify the substitution; the mode of cognition also has to be taken into consideration. In the present case, although qualified existence and pure existence are ontologically identical, they are cognized under different modes, in the inference as qualified, and in the substitution as pure, existence. Hence for substitution in any inference, what is necessary is the identity of modes of cognition, not ontological identity.

CHAPTER V

SOME ASPECTS OF THE NAVYA-NYĀYA THEORY OF LANGUAGE

1. CONCEPT OF LANGUAGE

Different concepts of language give rise to different problems and to different theories of language. I shall explain here only a few concepts of language. (a) Language may be defined as man-made sounds to communicate information or thoughts. The most common form of sounds is articulate speech. But this definition of language is wide enough to include drum-beating, or playing of any instrument, musical or non-musical, as in morse-code. Of these different forms of language, articulate speech is the most basic form, for all other forms logically depend on it. The different sounds of instruments have to be conventionally related to information which can be done only through articulate speech.¹ Morse-code, again, depends logically on the analysis of speech into letters of the alphabet. Although this conception of language is quite general still it does not include other forms of behavior which may be regarded as language in a still more general sense. (b) In this very general conception of language, any behavior, not necessary speech-behaviour, which can communicate information or thoughts may be called language. In this sense gestures and postures are regarded as forms of basic language. It has been argued that gestures are more basic than speech. A person in a foreign country may use gestures to communicate to others that he is hungry or thirsty or whatever. Gestures have to be distinguished from postures which even animals can understand. Postures are natural responses common if not to all animals, at least to higher animals. Postures constitute a very poor language, very few information can be communicated through them. St. Augustine has asserted that gestures and other bodily behaviour constitute the natural language of man.² That is why a child learning his first language has to observe

¹ For example, in Sardindu Bandyopadhyaya's story 'the earthen lamp' (mrit pradip), the queen Somadatta heard the different tunes on the flute, and learnt the secret message. When Chakrāyudha Īśānavarmā asked her how she could get the message from the tunes played on the flute, she replied that she knew the words in the tunes played, for the person who played the tunes was her music teacher.

² "Their intention was shown by their bodily movements, as it were the natural language of all peoples" (*Confessions* I viii 13).

the behaviour including gestures of the elders.³

It may be argued that even gestures constitute a very poor language. We cannot express all our thoughts or communicate all information by gestures. But this objection is not valid, because like all languages gesture-languages have to be learned. Gesture-languages have been developed as sign-languages which have to be learned like any other language.

It has been argued by Bennett that bees do not have any language even though they communicate through dancing. His argument is that the dancing of the bees is instinctive and does not require to be learned. An essential feature of all languages is that there must be some conventions for the use of languages, and the conventions have got to be learned. If there is any form of bodily behaviour which communicates information but which does not have to be learned then it can not be regarded as language.

(c) The two conceptions of language explained above do not include written language. Sometimes it has been argued that written sentences, specially written atomic sentences, are pictures of reality.⁴ But this theory overlooks a fundamental distinction between pictures and written language. A picture is related directly to the object of which it is a picture. Written language, even hieroglyphic, is not directly related to the object but to spoken words. Hence spoken language is logically prior to written language.

Thus Derrida's theory that written language is prior to spoken language is hard to justify. Even though written language expands the scope of spoken language in many directions, still the possibility of written language is dependent upon spoken language.

It is usual to distinguish between a natural language and artificial language. The distinction, however, is determined by what we mean

³ Gestures as para-linguistic behaviour may be used with speech to disambiguate. Take, for example, 'bring *saindhava*' where the term 'saindhava' means either salt or a horse. If one is taking food and says this, it is natural to suppose that salt is meant; but one may also intend to proceed on a journey immediately after taking food. So to disambiguate in this case, one may use appropriate gesture together with the word 'saindhava'. If one points to the plate, then salt will be meant, if, on the other hand, one points outside, then a horse will be meant.

⁴ Why spoken sentences cannot be regarded as pictures of reality will be discussed later.

by 'natural language' and 'artificial language'. We have already noted that according to St. Augustine behaviour is 'the natural language of man'. If we accept this sense then spoken language will be non-natural language which if interpreted to mean artificial language, can be learnt by a child only through the natural language which he naturally knows. In this sense a natural language does not require to be learnt. But we have also Bennett's theory that any pattern of behaviour even when it succeeds in communicating information cannot be called a language if it is instinctive. In this sense a natural language will be a language of ordinary people used for all purposes. An artificial language will be a language invented by a group of men for a specific purpose. It is usual now to distinguish between object language and metalanguage. An object language, like formalized arithmetic, is constructed by means of syntax and semantics in the metalanguage. This metalanguage is a natural language, supplemented by additional symbols, if need be. This metalanguage may, in its turn, be formalized by means of a meta-meta-language which has to be a natural language. The point is that to construct an artificial language syntactical and semantical rules have to be stated eventually in a natural language as the artificial language is yet to be constructed. So in what follows we shall be concerned mainly with natural language.

2. NAVYA-NYĀYA THEORY OF LANGUAGE

Language is articulate speech. Sign-languages like showing two fingers to mean two and other gestures to mean that one is hungry, thirsty, etc., are languages only in a derivative sense just as written language. The Navya-Nyāya theory is that spoken language is language in the primary sense, whereas gestures and written language are languages only in a derived sense, for the gestures and the written signs remind one of the spoken words which would have been used to convey the same sense. It is only by 'suggesting' spoken words that these become a 'language'.⁵ The commentators of Viśvanātha make

⁵ *Maunīślokaḍāvityādinā* dvitvādibodhakavijātiya-hastaceṣṭadeḥ saṁgrahaḥ *Dīnakarī*, p. 545) *Padajñānasya karaṇatvām iti navīnamatas tu lipyā hastaceṣṭayā ca saṁketitapadajñānād bhavati śābdabodha itī bhāvaḥ* (*Rāmarudrī*, p. 545). *Maunīkāṭika-vākyabodhaka-lipvādāvityarthah ādīpadātī dvitvādī bodhakahastaceṣṭadeḥ parigrahaḥ* (*Prabhā*, p. 545).

a distinction between the so-called 'gesture-language and written language by describing the former as language of a different kind (*vijāṭīya*) and the latter as of the same kind as the spoken language, by contrast, *sajāṭīya*. But even though gesture-language and written language are thus different from each other in kind, still both of them differ from spoken language. They are called 'language' in the wider sense because gestures and written characters 'suggest' ('*bodhaka*', '*saṅketita*') spoken words which alone constitute language proper.

This Navya-Nyāya theory is based on the presupposition that written language is parasitic on spoken language, even though writing makes possible long and complicated constructions which would have been impossible without writing. Even admitting the fact that the art of writing not merely gives permanence to speech so that it can be repeatedly observed, and also makes possible the development of language in newer directions, the fact remains that written language would have been impossible without spoken language. Thus spoken language is logically prior to written language. In their theory of meaning, Navya-Nyāya philosophers, therefore, regard spoken language alone as primarily significant and written language is taken as derivatively significant in so far as it suggests the spoken words. It is only through spoken words suggested by the written words that they become instruments of communication.

About gesture-language, too, Navya-Nyāya philosophers hold the same theory of the primacy of spoken language. Here this primacy is not apparent; for, apparently, gesture-language precedes articulate speech in the process of evolution. Animals use bodily signs to communicate with each other without sounds. Yet it is a fact that articulate speech is different in kind from gestures which can be used to communicate only the barest information. Emergence of articulate speech marks a total break in the process of evolution. Many Western philosophers have even identified rationality of man with articulate speech which, then, is the differentia of man from other coordinate species. (Of course, Navya-Nyāya does not contain any ideas of biological evolution.) Moreover, it is not clear if two deaf and mute persons can communicate by means of gesture language, for none can be reminded of the spoken words 'suggested' by the other's gestures, as none of the two can possibly know any spoken words.

3. SANSKRIT AS THE OBJECT-LANGUAGE

All systems of Indian philosophy offer a theory of only Sanskrit language and a theory of meaning of words and sentences of Sanskrit. It is necessary to note some special features of this language. One feature of Sanskrit as a language is that it is a frozen language; only as a frozen language it serves as the object-language in the Navya-Nyāya theory as also in Indian theories of meaning generally. Sanskrit, therefore, has a very rigorous grammar starting with alphabets classified into vowels and consonants, rules of formation of words from basic elements, rules of formation of sentences, and so on. Pāṇini's grammar with its rigorous definitions explicitly stated as rules of abbreviation, and rules with an enumeration which uniquely determines their order, with various devices for determining the scope of the rules and the order of their precedence, stands out as one of the best examples of the science of grammar. Still Sanskrit differs from a rigorously constructed artificial language as we have now, in so far as it allows ambiguous words, figures of speech and some freedom to analyse a given expression in different ways. A complex expression, therefore, is, in general, not uniquely analysable even in the most technical language of Navya-Nyāya.

Dealing only with Sanskrit as the language of study gives rise to the problem of explaining the possibility of regional languages, and languages other than Sanskrit. An extreme theory, supported by Gadādhara, is to treat all expressions of regional languages as really devoid of meaning but used in practice as significant only by mistake. Expressions of regional languages create only an illusion of sense.

This extreme theory has not been accepted by many Navya-Nyaya philosophers. Annam Bhaṭṭa, for example, in his commentary *Uddyotana* on Kaiyata's *Pradīpa* gives an argument of some Navya-Nyāya philosophers against the theory supported by Gadādhara.⁶ We

⁶ *Nanu bhāṣāsābdānāmapi vācakatvameva, hasta-karādivad vinigamakābhāvāt. Na ca sarvadeśaikaikarūpyam vinigamakam; tat kim sarveṣu deśesu saṁskṛta-vyavahārasatvam vā, yatra vyavahāras tattraikarūpyam vā, niyata-deśa-vyavahārābhāvo vā. Nānyaḥ kvacin mleccchedeśe saṁskṛta-gandhābhāvāt. Dvitiyasya bhāṣāsādhāranyāt. Na tritīyaḥ 'Savatirgatikarmā' ityādi-bhāṣyavirodhāt. Nāpi śīṣṭa-prayuktatvam vinigamakam bhāṣāsādhāranyāt. Vastuta tṣvareṇa srṣṭyādvavārtha-viśeṣavacchabdaviśeṣa apīsrṣṭa eva, 'nāma-rūpe*

now explain this argument :

Like words in Sanskrit, words of regional languages, too, have meanings. For, there is no way of determining whether Sanskrit words have primary meaning and regional languages have only derivative meaning or conversely. The determinant here cannot be equiformity of words in all countries, for the meaning of 'equiformity' is vague and unclear. It may mean one of three different things—

(i) 'equiformity' may mean that Sanskrit words are used in all countries;

(ii) 'equiformity' may mean that words which are used in a particular region have a recognizably identical pattern;

(iii) 'equiformity' may mean absence of usage of regional languages. Now sense (i) cannot be accepted because in some foreign lands (*kvacin mleccadeśe*) there is no trace of Sanskrit (*Samskṛta-gandhâbhāvāt*). Sense (ii) cannot be accepted because equiformity in this sense is common to all languages. Sense (iii) also cannot be accepted because it violates what has been stated in the *Bhāṣya* which in many places emphasizes use of different nonstandard words among people. Even the way the elite speak cannot be the determinant, for this is common to all languages. According to these philosophers who oppose the theory which Gadādhara supports, God created the world of objects and also their names at the same time. It cannot be said that God created only Sanskrit language and no others. When God created the Ionians, He created their language at the same time. It cannot be said that those languages where originally Sanskrit, from which they evolved.

The attempt of the modern comparative philologists to postulate and construct a proto-Aryan language from which all Indo-European languages have evolved according to rules of phonology, philology and grammar tends to support the theory that originally God created only one language, be it Sanskrit or some other language from which all other languages have evolved. The consequence of this theory of the origin of languages for the theory of meanings according to

vyākaroṭ' iti śruteḥ. Na hi tādānim saṃskṛtam eva sṛṣṭam na bhāṣāntaram ityatra mānam asti. Tat-tad-yavanādi-sṛṣṭau tadīya-bhāṣayā api tadānim eva sṛṣṭatvāt. Na hi teṣāṃ api prathamam saṃskṛtenaiva vyavahāraḥ, paścād apabhraṃśa-rūpa-bhāṣā-pravṛtīr iti kālpanāyām mānam asti. (Mahābhāṣya with Pradīpa and Annambhaṭṭa's Uddyotana, Part I, Govt. Oriental Mss. Library, Madras, 1948, p. 47).

Gadādhara, is that the exclusive concern of the theory of meaning should be with the original language as the object-language. Now this is a further theory which need not be accepted even if one accepts the theory of evolution of different languages from one mother language. Thus the arguments given above of those who propound the theory which Gadādhara rejects are invalid, because like Gadādhara they assume the debatable theory of the logical connection between the mother language and the theory of meaning. Even if it be admitted that the regional languages in North-India have evolved from Sanskrit, it does not follow that words and sentences in them do not need to be explained and that no theory of meaning over and above the theory of meaning of Sanskrit is needed. This is the point which Jagadīśa and other Navya-Nyāya philosophers have made. According to these philosophers, there is a possibility of developing different theories of meaning for different regional languages; only they are not interested in developing such theories. They are concerned only with Sanskrit as the object-language.

4. DIVINE ORIGIN OF LANGUAGE

Indian philosophers of the Nyāya school all agree that Sanskrit is a divine language, created by God. God as the creator of the universe is also the creator of all languages including Sanskrit. This is the point emphasized by the views explained by Annambhatta. One reason for holding this theory seems to be that language developed naturally and not by convention. This theory of divine origin of languages, specially, of Sanskrit, which is the object-language of all theories of meaning in Indian philosophy, has a far reaching consequence for such theories. To create a language is to endow expressions of that language, after they have been created, with meanings. God creates both the world of objects and also the language with which to talk about it. But this talking about the world of objects is impossible unless there is a relation of meaning between language and reality. According to Navya-Nyāya this relation between language and reality is God's will. That is, God not merely created the objects and the sounds, but also instituted a relation of meaning between the sounds and the objects. Because of this relation sounds become expressions of a language. Spoken words as physical realities are merely a kind of sounds; they become language only when they are endowed with meaning.

The theory that meaning as a relation between an expression and

an object, simple or complex, is the will of God who is also omniscient and truthful, has the consequence that no basic words can be empty, i.e., devoid of meaning (reference). Thus this theory gets rid of the problem of empty terms, as Frege, for example, does by constructing an artificial language and arbitrarily assigning the null object as the referent of all so-called empty terms which therefore no longer remain empty, but have the same reference. But this device of Frege is artificial and there are Western philosophers who do not accept this way out of the problem posed by the existence of empty terms in a language. There is, however, a more fundamental problem in any theory of meaning which the Navya-Nyāya philosophers try to solve in their own way by their theory that meaning is divine will.

Now although articulate speech is a natural development of a power in man, by which he is distinguished from other animals, still in later stages of development, languages are constructed, of course, by using natural languages —i.e., languages which have arisen and developed naturally. In such artificial languages, if used for communication, the relation of meaning between expressions of such languages and elements in the ontology is purely conventional, i.e., creations of the will of those who construct those language. Later Navya-Nyāya philosophers take note of the phenomenon of creating technical (*pāribhāṣika*) terms and hold that the relation of meaning is conventional in the sense that it is created by the will of the persons concerned. From this they generalize to the case of even natural languages like Sanskrit and hold that the meaning relation is the creation of the will of man. But this amalgamation of natural languages into man-made languages raises various difficulties. For example, no artificial language can be created in a vacuum; such construction presupposes the prior existence of another language. The theory that natural languages could develop by human convention faces the difficulty of explaining how such conventions could ever be made in the absence of any language whatsoever. The two problems of origin of a language and constructing a theory of the nature of meaning for that language, though in all appearance fundamentally different, are yet essentially connected. For a language cannot originate without meaning objects; the nature of the origin of language determines the nature of the relation of meaning within that language. If the language is man-made, then meaning is also man-made for that language; if it is not man-made, then meaning is

not man-made.

5. THEORIES OF LANGUAGE LEARNING AND THEORIES OF MEANING

Just as theories of the origin of language determine some fundamental aspects of theories of meaning, so also theories of language learning and theories of meaning are closely connected. Recently many philosophers like Davidson have argued against philosophical theories of meaning prescribing rules of language learning which must be empirically ascertained and not a priori prescribed. Yet it is a fact that different theories of meaning do determine at least some aspects of theories of language learning. For example, those philosophers who advocate that it is the sentence which is the unit of meaning, and not the words, usually reject the lexicons as sources of word-meaning on the ground that in Sanskrit lexicons meanings of isolated words are given and not as they occur in sentences. The Mīmāṃsakas hold that meanings of words can be learned only from their use in sentences by persons who already know the language (*vṛddha-vyavahāra*). The Naiyayikas, on the other hand, advocate the theory that isolated words are the units of meaning and hence accept grammar, lexicon, statement of authoritative persons, usage, and linguistic contexts as sources of learning meanings of words. Thus a difference in the theory of the unit of meaning determines the source of learning meanings. It has become commonplace among contemporary Western philosophers to hold that dictionaries do not give word-meanings but explain word-meanings only in the context of a sentence. This, however, goes against the concept of lexicon in Sanskrit which gives only synonyms of words. Thus the very concept of a lexicon or dictionary of a language changes according to the theory of meaning formulated in philosophical systems.

6. Language as means of communication

According to Navya-Nyāya, language used as a means of communication to be successful must ensure that the hearer understands what the speaker intends to convey. Language in this aspect is treated in Indian philosophy in general and Navya-Nyāya in particular as a source of second-hand information. To be a source of knowledge second hand, is, according to Navya-Nyāya philosophers, to be the instrumental cause which produces the cognition of the sentence-meaning. The concept of meaning, therefore, is defined purely from

the hearer's point of view giving a very minor importance to the speaker's point of view. If language as a means of communication is conceived as the instrumental cause which produces a certain cognition in the hearer, the concept of meaning is formulated only from the hearer's point of view. According to Navya-Nyāya philosophers, the speaker already has the knowledge which he intends to communicate to the hearer. Thus in the case of inference for oneself, the person completes the process of inference without using any words at all. When he wants to communicate his inference he uses a sentence with five members. It is the hearer who has to understand the meaning of the sentence; hence meaning is defined as the divine will which produces a certain cognition in the hearer on hearing the relevant word. Meaning of words conceived in this way completely ignores the intention of the speaker which is important only in understanding a sentence-meaning. Thus in word-meaning the speaker has no role.

Thus Navya-Nyāya philosophers like Jagadīśa have the problem of explaining how words which mean objects can yet mean a relational structure when they occur in a sentence. This is because words do not occur in isolation in a sentence. The cognition of the syntactical relations among words in a sentence is the only means of cognizing the semantical relations among objects meant by the words.

7. ONTOLOGY OF SPOKEN SENTENCES

I shall discuss here first the problem whether a spoken sentence can be regarded as a picture of what it means. One initial difficulty is that the structures of synonymous sentences in different languages are very different. So it is not clear which sentence of which language can be a picture of what it means. This difficulty is present in the case of written sentences also. Wittgenstein, for example, says; "In Russian one says 'stone red' instead of 'the stone is red'" (*PI*, p.10e). This difficulty may be sought to be solved by formulating a symbolic canonical form of all synonymous sentences with different structures in different languages. But formulas of symbolic language, of symbolic logic, for example, are always written expressions. We have already discussed why written sentences cannot be regarded as pictures even by using conventions of projection.

There is, however, a more serious ontological difficulty about spoken words or sentences. One cannot speak a whole sentence or

even a word of more than one syllable, one can only utter sounds in succession; when the first syllable or phoneme is uttered the second is not yet uttered. When the second is uttered the first sound has vanished. So it is impossible to speak a whole sentence as one entity. As uttered sounds are necessarily successive, they cannot be regarded as pictures which are wholes of co-existing parts.

The Navya-Nyāya philosophers explain the experience of the common man who perceives a whole sentence. These philosophers make use of a special form of perception due to *jñāna-lakṣaṇa sannikarṣa* to explain how past sounds can also be said to be perceived. When one hears the sounds as successively uttered, one remembers them in their order. This memory of the earlier sounds functions as a *sannikarṣa* which together with the hearing of the last syllable or phoneme, produces the perception of the whole sentence. If such a special form of *sannikarṣa* is not admitted, can there be any explanation how a whole sentence can be perceived, through hearing successive momentary sounds? There are different philosophical theories which I explain very briefly.

There are philosophers who distinguish between the act of speaking and a spoken word or sentence. They point out various difficulties in the Navya-Nyāya theory of perception of a whole word or sentence. If the last syllable presented together with impressions of the earlier syllables can cause perception (hearing) of the whole word or sentence, then even if the syllables are uttered with long temporal gaps in between, the perception of the last syllable together with the impressions of the earlier ones ought to cause perception of the whole word or sentence. But no one accepts this as a cause of the perception of the whole expression. The case is not different even if the syllables are uttered in quick succession. Secondly, "if the sounds are remembered in the same order in which they are uttered, how could they be simultaneously grasped?"⁷

Hence grammarians like Bhartṛhari do not accept the theory that speaking is ontologically identical with what is being spoken. A spoken word or a sentence, according to this theory, is a type of

7 K. Kunjunni Raja, *Indian Theories of Meaning*, p. 110. The Navya-Nyāya philosophers, however reply to this objection by pointing out that the memory impressions of the sounds in their spoken order are the causes of the resulting perception of the word as a whole.

reality different from speaking.

The theory that words are ontologically different from noises which can be uttered by a speaker involves difficulties of all sorts. One difficulty is how to explain whether a speaker speaking words and sentences performs two acts — producing sounds and speaking words. Then there is also the difficulty from the hearer's point of view. Does a hearer hear two things — sounds and words? The following three different answers apart from their own difficulties are inadequate chiefly because they fail to explain what the speaker does in speaking. (a) One answer is that sounds are heard as identical with words. There are no two objects which are heard when one hears words or sentences. But this answer does not explain how noises and words can be ontologically different and yet the hearer can hear them (correctly?) as identical. (b) The second answer is that sounds are imperceptible and only words can be heard. What is necessary and sufficient to explain the perception of words and sentences is that there be sounds, not that the sounds be perceived. A difficulty of this theory is that a deaf person who cannot hear sounds should be able to perceive spoken words, if objectively there are appropriate sounds. (c) Words are manifestors of objects, and so different from mere sounds. But when one does not clearly hear the words because they are, say, spoken at a distance, one hears only the sounds. Quine cites many examples of 'listening to a lecturer with an odd accent or unusual diction'. 'Accents may bewilder, and they can cause misapprehension without bewilderment.'⁸ A difficulty of this theory is that it has to postulate two different causal relations — one for perception of words as fused with sounds, and another when they are not so fused.⁹ When we hear sounds we cannot hear the words, for perception of sounds prevents perception of words. Yet when we perceive words we also perceive sounds as identical with the words. But then the question is : if noises and words are ontologically different, words can at best be confused with, not fused with sounds. So the problem of reality of words confused with the ephemeral sounds producing correct perception of words remains.

⁸. Quine, *Quiddities*, pp. 166-167.

⁹ 'Speaking with an eye to speech is one thing, and speaking with an eye to content is another'. Quine *ibid.*, p. 167

8. AN ONTOLOGICAL PROBLEM CONCERNING MEANING

Language is about reality. The problem here is to explain how it is possible. This is a transcendental question as distinct from a factual one. Hence it cannot be solved by asserting that language is, as a matter of fact, about reality. In the usual analysis of meaning, this transcendental problem is presupposed as already solved. For example, Charles Morris says :

‘The process in which something functions as a sign may be called *semiosis*. This process has commonly been regarded as involving three (or four) factors : that which acts as a sign, that which the sign refers to, and the effect on some interpreter in virtue of which the thing in question is a sign to that interpreter. These three components in semiosis may be called, respectively, the *sign vehicle*, the *designatum*, and the *interpretant*; the *interpreter* may be included as a fourth factor’.¹⁰ He has already assumed that there are signs, that there is an ‘effect on some interpreter in virtue of which the thing in question is a sign to that interpreter.’ He explains *this effect* behaviouristically thus. ‘To use one of Mead’s frequent examples, we may consider the situation of a person noticing smoke in a crowded theatre. Smoke is a nongestural sign of fire, and its perception calls out to some degree responses appropriate to fire. But further, the spoken word ‘fire’, as a response which is connected with a whole set of responses to fire, tends to be uttered. Since this is a linguistic sign, the utterer begins to respond towards this tendency toward utterance as other members of his social group would respond—to run toward an exit’ (p.37). But this explanation of how a sound becomes a linguistic sign is not satisfactory. In the course of reacting to smoke as a nongestural sign of fire, one may utter the sound ‘fire’ which is just an interjection. The passage from sounds as interjections to sounds as signs, remains unexplained. Moreover, conditioned reflex is really a physiological process corresponding to the psychological process of association. The semantical relation between a word and its meaning is not *just* association, but a *special type* of association. The process of replacing a nongestural sign by a verbal sign in response to an object or situation cannot be identified with semantical meaning, because in this process there is no scope for uniformity. It would be a mystery if everyone, or, a person always, uttered the same word ‘fire’ when reacting to the nongestural sign

¹⁰ *Foundations of the Theory of Signs*. vol. 1 No. 2, p.3.

smoke before learning the word which is not a semantically unrelated sound. Thus this behaviouristic theory of how a word is semantically related to its meaning already presupposes the theory that it is used by 'members of a social group' in very similar situations. But this is exactly what needs to be explained.

That meaning is neither a conditioned reflex or a mere association can be shown by the example of Helen Keller. Helen was deaf and blind from early childhood. The problem was how to teach her language. If meaning were a conditioned reflex or an association, this could have been established by repetition. Her teacher failed to make her realize that the sign that she made on her palm *meant* the object which she experienced. The teacher almost gave up her attempt to teach Helen language. As a last resort, she thrust Helen's hand under water and made a sign on her palm at the same time. Somehow Helen understood that the sign made on her palm *meant* water. Once the concept of meaning was available to Helen, there was no difficulty in teaching her language. This case shows that meaning cannot be a conditioned reflex or mere association. Meaning is association of an altogether different kind. For example, the word 'light' may be associated with darkness (by contrast), with the sun or a lamp, or even with other words as in 'Hail holy light!' But all these associations do not constitute the meaning relation between the word 'light' and light.

This also explains why by simply observing the behaviour of an adult on the command of a senior person, a child cannot learn the meaning of sentences and eventually of words. For this child may get the idea that the behaviour and the spoken words are causally, not semantically, related. That is why St. Augustine has to say that the semantic relation is 'naturally' known by knowing 'the natural language' of men. The problem is how to know what a person does, (by moving his hands, or by producing sounds), can be regarded as being *about* reality. A person's behaviour is his personal affair, perhaps causally determined by heredity and environment; how can one *ever* get the idea of a semantical relation between the personal action (including speech behaviour) and reality? A sound emitted by a person may be an interjection, not necessarily a significant word. That a sound uttered by anyone can at all be about an object other than the sound is a mystery.

A theory which emphasizes the conventional, rather than the

causal-behaviouristic, factor in semantic meaning has also been proposed. But convention, as explicitly stated rules, is possible only when some language (a metalanguage) is available. But 'rules for the use of sign vehicles are not ordinarily formulated by the users of a language, or are only partially formulated; they exist rather as habits of behaviour' (Morris, *ibid*, p.23). The problem is to explain how 'habits of behaviour' are possible to begin with. Navya-Nyāya philosophers invoke God's will as semantically relating a word with its meaning. This is almost the same theory as a natural connection between words and objects which is also not man-made. But this seems to be very much like repeating the problem rather than solving it.

The metaphysical theory of semantic relation between words and objects emphasizes the point that this relation cannot be explained except on the hypothesis that words as articulated sounds and objects which are altogether different types of reality on the surface, must be one reality at the deepest level of consciousness. Unless language as rooted in consciousness is fused with reality in one amorphous unity, language as articulate speech cannot *refer to, designate or mean* reality. Even at the surface level of articulate speech, language cannot be totally divorced from reality. Language as sound, and reality, are very different types of reality—the word 'fire' and fire are indeed very different—still the word 'fire' *can mean* fire, *can be* semantically related with it, only if we suppose that language and reality are one at the deepest level of human existence. Thus the *possibility* of semantic relation can be explained only on the hypothesis of the metaphysical unity of language and reality. This is the theory of the grammarians.

Nyāya philosophers, however, offer a different solution. They point out that God who has created both the words and objects can relate them semantically by his will. It is divine will which is the semantical relation. This also explains why in a particular language a particular word means a particular object. The grammarians explain why any word can mean any object, but not why a particular word means a particular object in a particular language. That meaning of words has a conventional aspect is missed by them.

It may be argued that Bhartṛhari has also admitted conventional meanings of words. But this aspect of Bhartṛhari's theory does not seem to be consistent with its other fundamental aspects. According to Bhartṛhari it is the sentence which is real as an indivisible unit;

the words are unreal appearances. So both syntax and semantics of words are unreal. As words are unreal, Bhartṛhari cannot also hold that words are semantically related to objects. Words are useful fictions; but they are fictions. Any fictitious entity cannot be related to objects which are empirically real.

9. THE NAVYA-NYĀYA THEORY OF MEANING

The main feature of Indian theories of meaning in general and the Navya-Nyāya theory in particular, derives from the basic concept of language as the only means of communication. Language is used, words are spoken, only to communicate information to a hearer or a group of hearers. This leads to the construction of theories of meaning exclusively as explanations of how the hearer obtains knowledge from spoken words of a reliable person. Meaning of a word or a sentence is explained in terms of the knowledge which the *hearer* obtains from the word or the sentence used by the speaker. Thus the theory of meaning is necessarily a part of the theory of knowledge—specially of the sources of knowledge. Although in developing theories of meaning Navya-Nyāya philosophers deal exclusively with the hearer's point of view, still they also take into account the intention of the speaker as a determinant of meaning of *sentences* used by him. This is because the hearer, in order to get (second hand) knowledge from a speaker, has to understand the intention of the speaker. Thus knowing the intention of the speaker is what the *hearer* has to do to obtain knowledge. Yet the intention of the speaker cannot create new meanings of expressions, he can only pick out, choose, one of the many meanings already ascribed to them. A speaker speaking a language is completely determined in his choice of words and idioms by their semantic meanings in the language fixed by convention or otherwise. Jagadīśa, however, does not accept the view that the hearer has to understand the intention of the speaker. His argument is that the intention of the speaker can only be guessed or inferred from verbal or non-verbal contexts, etc. So to understand the speaker's utterance it is enough to note the observable features of the context; there is no point in first inferring the speaker's intention from these very features and then to understand what he says *via* this inference of his intention.

In the case of parrots uttering sentences, how can we infer the intention of the parrots, or even note the context? Jagadīśa's answer to this question is that parrots can never speak new sentences which

they have not been trained to speak and hence the sentences which a parrot might utter will carry the intention of the person who trained it and by noting the features of the context of the trainer's utterance, we can understand the meaning of such sentences.

10. THE NAVYA-NYĀYA THEORY OF WORD-MEANING

(a) The relation between words and objects such that a sentence formed from an appropriate selection of words means a related objective structure is called the power of words (to mean objects). This relation between words and objects at a particular time is founded on previous usage, leading thus to an infinite regress which is stopped by an eternal convention. This convention expresses the eternal will which is not the source of, but is identical with, the relevant relation between word and object.

(b) This relation between word and object may be either direct or indirect. Where there is a difficulty in understanding a sentence-meaning by using literal word-meaning, indirect meaning is resorted to.

(c) This relation between word and object is conceived as that relation by knowing which one knows the object on hearing, remembering, inferring, or otherwise cognizing, the word. This emphasizes that the Nyāya theory of meaning is primarily in terms of the hearer's cognition of the appropriate object on cognizing the proper word. The convention expressing the eternal will is usually put in the following form :-

(i) Let 'o' produce the cognition of o.

As this convention is applicable not to the speaker, but to the hearer only, the Navya-Nyāya theory of the relation of words and objects is explained fundamentally in terms of the cognition which the hearer has on hearing the word. Thus the word 'o' is related to the object o, by the convention (i) only *via* the cognition of o. The convention (i) really connects the cognition of 'o' causally with the cognition of o, but semantically with o itself. The semantical relation between 'o' and o is defined in terms of the cognition of o produced by hearing 'o' only if the hearer knows the convention (i).

(d) A word can refer to an object or objects only if the objects *are definite* i.e. possess one or more properties which *as a matter of fact* belong to all referents but not to anything else. These properties thus completely determine the (class of) referents.

(e) A word can be semantically related to an object only under a

definite mode, i.e. only by virtue of the properties stated in (d) above. This is the usual theory to which some exceptions are made by many Navya-Nyāya philosophers. According to these philosophers words may be, sometimes at least, related to objects directly and not through any mode.

(f) The mode under which the object is presented by the word is invariably the *qualifier* in the *cognition* of the object, produced by hearing the word. This word may be a proper name, a general term, an abstract term and so on. When a general term like 'cow' is used, it applies to all and only individual cows which are selected from all objects of the universe by the universal property, cow-ness, *belonging to all and only cows*. Generally this property of the objects by virtue of which a word applies to them and only to them, need not be a universal in the technical sense of Nyāya. But it is necessary that this property which demarcates all and only these objects to which the word applies must belong to the objects themselves, must be a property of these objects. Thus the mode under which objects are presented by a word must be a property of the objects themselves. The hearer who *knows* the convention will *cognize* the objects under this mode on hearing the word. Thus such a person on hearing the word 'cow' will have the *cognition* of individual cows as instances of the universal property cow-ness, i.e., as cow-ness-possessing. To cognize cows as cowness-possessing is to have a cognition of which the cows are the qualificands and cowness is the qualifier.

(g) This mode of presentation of the object(s) (in f) is also a cause *for application* of the word to the object(s). This is applicable to the speaker as well as to the hearer. When the speaker uses a particular word, he has the

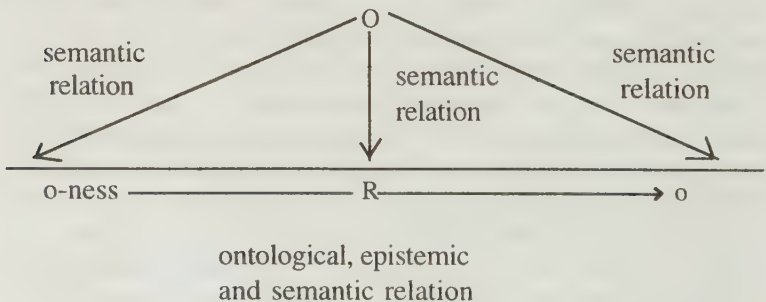


Fig.1

cognition of the object(s) under the specific mode which is a cause for his applying the word to the object(s).

(h) This property is also semantically related to the word. The previous diagram Fig. 1, makes the point clear.

The word 'o' is semantically related to three elements in the ontology :-

- (a) the object(s) o.
- (b) the property o-ness
- (c) the relation, R, between o and o-ness

Any one who knows the meaning of 'o' will know o as o-ness possessing by R. But apart from this ontological relation between o and o-ness, o-ness is also the *mode or qualifier of cognition* of o produced in the hearer on hearing 'o'. It may be instructive to compare this diagram with the one used to represent Frege's theory.

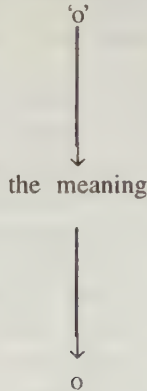


Fig.2

Now although Frege himself draws this diagram to represent his theory,¹¹ this does not seem to represent Frege's theory correctly. (i) For one thing, the relation of 'o' to its meaning is a semantic relation, but that of the meaning to the referent (o), is not semantic. Any one who knows the language knows the meaning of 'o' but does not, thereby, know the referent, If o exists, then the meaning is only epistemically related to o 'illuminating' only one of its aspects. We may redraw Fig. 2, to compare and contrast Frege's theory with Nyāya theory as representd in Fig. 1.

11. Pranab Kumar Sen, 'Russell against sense'? JICPR, Vol, ii, no. 1. p.97., footnote 5.

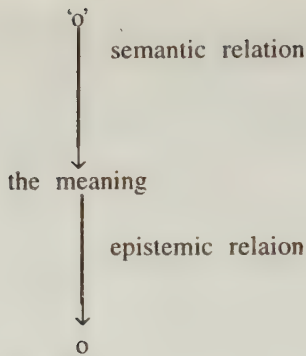


Fig. 21

This explains why a cognition generated by a word is a qualificative cognition. The object cognized as the referent of a word is the qualificand of the cognition, the mode of the presentation of the object is the qualifier and the relation between the object and the mode of its presentation by the word is cognized as the qualification.

Now Gaṅgeśa argues that cognition of the qualifier is causally necessary for every qualificative cognition. Thus the cognition of the property of the object, as the mode of its presentation must be prior to the cognition of the object in an indeterminate perception. The Nyāya argument is that one can cognize the meaning of the word 'cow' only as that which is qualified by cowness. Any one who does not have a prior cognition of cowness cannot cognize the meaning of the word 'cow'. It may be argued that cowness can be cognized only in a prior indeterminate cognition.

The opponents of Gaṅgeśa challenge this theory. They argue that in order to have a qualificative cognition generated by a word it is not necessary to have a prior cognition of the property in indeterminate perception. For a novel qualifier previously not cognized becomes cognized as the limiter of being meant by a word because of semantic fitness, etc.

There is a difference in the interpretation of the *Pūrva-Mīmāṃsā* theory of the cognition of word meaning. We have given one interpretation just now. A second interpretation of the *Pūrva-Mīmāṃsā* is given by Śaṅkara Miśra in his commentary *Upaskāra* on the *Vaiśeṣika Sūtras* of Kaṇāda. This interpretation is that the *Pūrva-Mīmāṃsā* theory of the cognition of the meaning of a word like 'cow' is that cowness is cognized as the meaning of the word by the semantic power being cognized, whereas (any) cow is cognized as

a particular object by the actual presence of semantic power of the word, not cognized as such. Gaḍādhara has said that Gaṅgeśa accepts this interpretation of Pūrva-Mīmāṃsā theory of the cognition of word-meaning.

11. THE IMPORT OF SENTENCES

That sentences mean a relational whole is admitted by all. But in Indian philosophy these relational wholes are always regarded as complex objects rather than what are called facts in Western philosophy. Thus, what a sentence means has the form *a*-(*R*-*b*) which means *a* as related to *b* by *R*, and *not the fact that a is related to b by R*. In this complex object, the first term of the relation is the qualificand and the second term of the relation is the qualifier. The entire complex term means the qualificand as qualified by the qualifier. The problem which arises here is how to determine which of the elements of the complex object becomes the qualificand and which the qualifier in the cognition of the sentential meaning. There are three different theories on this point in Indian philosophy—(i) the view of the grammarians, (ii) the view of the Mīmāṃsaka-s and (iii) the view of the Naiyāyika-s. We shall explain these theories in some detail. (i) According to the grammarians, in a sentence the verb is the most important element and hence in the cognition of the sentential meaning it is the meaning of the verb which becomes the qualificand and the meanings of the other words become the qualifier. Thus the sentence 'Devadatta cooks' produces the cognition of its meaning which takes this form—the activity leading to the cooking, which is going on at the present moment, and of which the one and only agent is identical with Devadatta. The meaning of the verb is an activity leading to the realization of the result or the production of the effect.

(ii) According to the Mīmāṃsaka-s, the meaning of the sentence is almost the same as that of the grammarians, the only difference being that the action leading to the production of the effect is regarded as the meaning of the verb, i.e., the verbal root, by the grammarians, whereas according to the Mīmāṃsaka-s this action leading to the production of the effect is *not* meant by the verbal *root* but by the verbal *suffix*. Moreover, this action is not a physical action, but merely a mental effort (*bhāvanā*). In the above sentence, according to Mīmāṃsa philosophers, the mental effort is meant by the inflection 's' in 'cooks', but not the root 'cook' which means 'the

changed state (of the food)'.

(iii) According to Nyāya, it is the suffix which means the mental action and in this Nyāya agrees with Mīmāṃsā and differs from the grammarians. Nyāya differs from both in holding that a sentence produces a judgement the subject of which is what is meant by a word in the first declension. Thus the above sentence produces the judgement 'Devadatta (is the) locus of the action (---mental effort-- - a physical action cannot belong to a self) leading to a changed state (of the food)'. *Devadatta* is the subject of this judgement because it is referred to as 'Devadatta' which has the first declension.

Whichever theory one accepts, one and the same entity cannot be meant both by the verbal root and also by the verbal suffix. If mental effort is the meaning of the verbal suffix, then it cannot be the meaning of the verbal root also.

12. COGNITION OF SENTENCE-MEANING

For knowing the meaning of a sentence the following seven factors are necessary :

- (i) cognition of words like hearing, remembering, inferring, etc. of words.
- (ii) cognition of the relation between words and their meanings.
- (iii) memory-cognition of the meanings of words.
- (iv) cognition of the intention of the speaker.
- (v) cognition of semantical fitness.
- (vi) cognition of expectancy among words.
- (vii) cognition of contiguity of words.

(i) In many systems of Indian philosophy, specially in Navya-Nyāya, cognitions are classified according to their instrumental causes. Understanding the meaning of a sentence is a kind of mediate cognition which is often defined as a cognition resulting from a previous cognition. A difference is made between words as heard and hearing of words. If there are no words used then there cannot be any heard words either. This is the case in gesture-language where no words are used and still a sentence-meaning is conveyed. We have already explained the Navya-Nyāya theory that seeing the gestures, one is reminded of the words which would have been used if the person could utter them. Hence there are no cognized words, but there is inference of words which therefore is the instrumental cause of understanding the meaning of the gestures.

(ii) Whatever cognition one has on hearing or otherwise cognizing words cannot be regarded as the understanding of the meaning of the sentences. A sentence may remind one of various things, say, by association. But this cognition due to the laws of association cannot be regarded as knowing the meaning of the sentence. The objects which are presented to the hearer by the semantical relation of the words to their meanings will constitute the sentence-meaning. It is therefore necessary to know the semantical relation between words and objects in order to know the meaning of the sentence.

(iii) This cognition of the semantical relation between words and objects produces the cognition of the objects on hearing the words. Cognition of the meaning of a sentence is directly caused by the cognition of word-meanings. This is the composition principle of cognition of sentence-meaning. If one does not know the meaning of a word occurring in a sentence one cannot understand the meaning of the sentence as a whole.

(iv) Cognition of word-meaning which is the direct cause (*vyāpāra*) of the cognition of sentence-meaning does not require any understanding of the intention of the speaker except in (d) below. First the literal meanings of isolated words are usually independent of the speaker's intention. But the cognition of sentence-meaning always requires cognition of the speaker's intention. (a) In the case of sentences containing ambiguous words the intention of the speaker is obviously a determining factor. (b) In sentences where a literal meaning of the words cannot produce the cognition of a sentence-meaning, the same words have to be interpreted as figuratively used depending on the intention of the speaker. (c) We have already noted that according to Navya-Nyāya philosophers, a sentence means a relational complex which is cognized in a qualificative cognition. Such a cognition has a qualificand, a qualifier, and a qualification relation between them. It is the intention of the speaker which determines which word-meaning would be the qualificand and which the qualifier. (d) The intention of the speaker, namely, that the effort to perform this action is good, is the first meaning of the *lin* suffix.

(v) As a sentence means a relational complex, words occurring in the sentences must mean objects which can be related by the relations meant in the sentence. This is a relation of fitness among word-meanings and is therefore semantical in nature. Without the fitness the objects will not be able to hang together to form a relational structure.

(vi) Expectancy is a syntactical relation based on semantical fitness. Words occurring in a sentence must have an order or concatenation such that the sentence as a whole can mean a relational complex. Thus in the sentence 'ghaṭam ānaya' we have the following four words—

(a) *ghaṭa*, (b) *am* (c) *ā+ni* (d) *hi*. Expectancy, according to Navya-Nyāya philosophers, is the concatenation of the four words in that order. This is conceived as '*hi*' preceded by '*ā+ni*' preceded by '*am*' preceded by '*ghaṭa*'. Thus the 'word-order' is just the last word as qualified by the preceding word qualified by the preceding word and so on. But the words '*ghaṭa*' followed by '*karmatva*' etc. do not produce any cognition of sentence-meaning because these words in that order do not produce any cognition of a relational structure.

This conception of expectancy as syntactical relation is based on the Navya-Nyāya theory that the cognition of a relation among objects meant by words is determined only by the order of words, for a relation cannot be meant by any word at all. This is because of the Navya-Nyāya theory that whatever is meant by a word must be cognized under a mode of presentation. A relation is cognized under no modes at all; hence relations cannot be meant by words. If a word is used to denote the relation, then the relation is at once promoted to a term and ceases to function as a relation in the cognized complex. In such a case a different relation is cognized from the order of the words. Thus expectancy is not just any and every order among words, but only that order among words which produces the cognition of a relational structure as the meaning of the sentence.

According to Navya-Nyāya philosophers a cognition of relation between objects denoted by verbs and objects meant by words functioning as nominative or other cases is not due to a cognition of expectancy. According to these philosophers this relation between the meaning of a verb and of a nominative in a sentence is produced by contiguity. It is only in the case of objects meant by a nominative or a verbal root and objects meant by their suffixes that the cognition of expectancy produces the cognition of a relational structure. It is to be noted here that according to Navya-Nyāya philosophers suffixes are conceived as words.

(vii) Words occurring in a sentence must have a proper relation of contiguity without which the intended meaning of the speaker cannot be cognized. In non-inflectional languages an ambiguity may result from this lack of contiguity as also in an inflectional language.

In 'the Gauls Rome shall conquer' it is not clear whether the intention is to say that the Gauls shall conquer Rome or conversely. So also in the sentence '*gām aśvam ānaya badhāna*', it is not clear whether both the cow and the horse have to be brought as well as tied. To solve the ambiguity knowledge of nonverbal context or situation is necessary. Otherwise the intention of the speaker cannot be cognized.

Although according to the older Naiyāyika-s all the four cognitions (iv)-(vii) are necessary for understanding the meaning of the sentences according to the later Naiyāyika-s cognition of fitness is not a cause of the cognition of sentence-meaning. According to these philosophers belief in the absence of fitness is a negative condition of cognition of sentence-meaning. This means that anyone who believes that the objects denoted by words in a sentence do not fit cannot know the meaning of the sentence. According to Nyāya the absence of a negative condition is a positive condition. So one who does not have the belief in lack of fitness will know the meaning of the sentence. Not having a belief in the lack of fitness is not the same as having a belief in the fitness. Thus even where a cognition of fitness is delayed the cognition of the sentence-meaning may not be delayed.

Jagadīśa holds an extreme position here. According to him expectancy is just the order among words which produces a cognition of interrelation among word-meanings. This expectancy is defined in terms of qualificative cognition, not in terms of semantical fitness. Thus the words '*vahninā siñcati*' (makes wet with fire) do not have semantical fitness, for making things wet and using fire do not hang together. Yet, according to Jagadīśa, this is a good example of a sentence for it produces a qualificative cognition although necessarily false. Jagadīśa also discounts contiguity among words for forming a sentence. The words '*girir bhuktam agnimān devadattena*' do not have the right sequence and are usually regarded as ill-formed. But Jagadīśa regards such strings as sentences. Thus according to Jagadīśa a sequence of words which produces a qualificative cognition, true or false, of interrelations among word-meanings is a sen-

tence, i.e., words having only expectancy constitute a sentence.

13. JAGADĪŚĀ'S THEORY OF WORDS OCCURRING IN A SENTENCE

According to Jagadīśā, only words which in isolation have meaning can occur in a sentence to produce sentence-meaning. The point here is that words in isolation cannot produce the cognition of interrelations among word-meanings. A sentence may or may not be embedded into a larger sentence, but words have to be supplemented by words in order to produce cognitions of relations among word meanings. This theory is radically opposed to the theory that a word-meaning already contains a relation although in the sense of a relation in general, not any specific relation.

A sentence produces a cognition of interrelation of meanings of words occurring in it. This cognition is necessarily a qualificative cognition. If R is a relation between a and b , then to cognize R is to cognize a as the qualificand and b as the qualifier by the relation R . Thus the meaning of a sentence according to Nyāya is the same as the meaning of a complex term. Jagadīśā's classification of words in a sentence into three categories is in terms of the qualificand, qualifier and qualification relation in the qualificative cognition produced by the sentence. We have already noted that according to Nyāya the suffixes and indeclinables are words as much as stems and roots. Jagadīśā, therefore, has three syntactic categories based on their function in qualificative cognitions (hearing) produced by words occurring in a sentence. (i) Stems and roots are words which produce qualificative cognition in which they are never the qualificand i.e. they will always be ultimate qualifiers. (ii) The suffixes are those words which occurring in a sentence as attached to, i.e., immediately succeeding, the stems or roots, produce qualificative cognitions in which they are qualificands always qualified by qualifiers which are their stems or roots. (iii) The indiclinables are words occurring in a sentence which produces a qualificative cognition in which meanings of such words cannot be related by identity with the meanings of other words in the sentence.

14. GADĀDHARA'S THEORY OF WORD-MEANING ¹²

In order to explain Gadādhara's theory of meaning of pronouns, it is necessary first to state briefly his theory of word-meaning. In Indian philosophy in general and in Navya-Nyāya in particular, theories of meaning of sentences are regarded as a part of theories of origin of true cognition. Hence in discussing theories of meaning, Indian philosophical systems almost exclusively consider how a hearer acquires information second-hand from what a speaker tells him. Indian theories of meaning refer to the speaker's intention only in so far as it is necessary for the hearer to cognize truly what the speaker says.

According to Navya-Nyāya, a word means an object only under a mode of presentation. Anyone who knows the meaning of the word knows the object under this mode, on hearing, remembering, or otherwise cognizing, the word. The problem of meaning of a word is the problem of explaining how the hearer knows the object under the particular mode.

The mode of presentation of an object, according to Navya-Nyāya, must be a property of the object. A property is anything which may be said to be in the object. According to Navya-Nyāya this is the case if and only if what is to be regarded as a property of an object is related to the object by an occurrence-exacting relation. Anything related to an object by such a relation will be its property.

The cognition produced by a word in a hearer is of an object which is a complex of three element. a-R-b, ¹³ where R is an occur-

¹² Gadādhara Bhaṭṭācārya (circa 1620-1700), has divided his major work on word-meaning. *Saktivāda*, into 3 sections. In Section 1, he develops his general theory of word-meaning; in Section 2, he discusses meanings of some special words. His discussion of pronouns like 'it', 'that-which' etc, belongs to this section. In Section 3 which is an appendix, he reopens issues of Section 1, and discusses them in much greater detail.

The Sanskrit term for pronouns is 'sarva-nāma', lit, 'names of everything', as pronouns can stand for any noun grammatically.

¹³ It is interesting to note that Mill in his theory of what he calls 'concrete general names' says:

rence-exacting relation. The mode of presentation which is a property of the object is always the second term of the relation, *R*.

A. The structure of the cognition caused by hearing the word 'o' may be represented schematically as

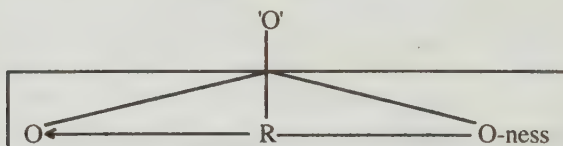
Cognition of O-R-(O-ness)

where

- (i) O is the qualificand of the cognition caused by 'O'
- (ii) O-ness is the qualifier
- (iii) R is the qualification of the cognition.,

B. The structure of the meaning relation may be represented by the following Diagram :

Diagram 1¹⁴



The word 'O' is related to the three elements in the objective complex by different relations which together constitute the meaning-relation which is one relation.

O-ness has the following three features :

- (i) O-ness is a property of O.
- (ii) O-ness is the qualifier of the cognition produced by 'O'
- (iii) O-ness is meant by 'O'.

Analysis of the meaning-relation

The meaning relation obtains between a word on the one hand and an objective complex on the other, in the sense that hearing a word one has the cognition of the object. Thus the semantic relation between word and object is explained in terms of the relation between the cognition and the object. A word is semantically related to

“The word man, for example, denotes Peter, Jane, John, and an indefinite number of other individuals, of whom, taken as a class, it is the name. But it is applied to them, because they possess, and to signify that they possess, certain attributes.” Mill, p.19. Only Gadādhara extends this theory of meaning to all words.

¹⁴ In drawing the diagrams 1-8, I have modified a method devised by the Department of Computer Science and Engineering, IIT, Kanpur.

an object if and only if the cognition generated by the word is of that object.

C. The structure of the cognition of the meaning-reaction (M) may be represented as follows :

Cognition of : 'O' M O, or usually

Cognition of : O M 'O'

In this cognition of M

(i) O is the referent

(ii) O-ness is the limitor of the property—being the referent—resident in O.

(iii) 'O' is the locus of M, i.e., has the semantical power to refer to O. Thus, although in the knowledge of M, only O is the referent of 'O', still O-ness and R are known as the limiting property and limiting relation of the property—being the referent—— resident in the object, O.

It is important to distinguish between the two cognitions and their structures in A and C above.

D. The word and the object or the objective complex are not related by any real or natural relation, but by will or convention. The general theory is that this convention is eternal or Divine Will.

The structure of this Divine Will is as follows:

(DW) O be the object of the cognition caused by 'O' where

(i) O is the qualificand of DW

(ii) O-ness is the limitor of the property of being-the-qualificand-of-the-Divine-Will resident in O.

(iii) Being the object of the cognition caused by 'O' is the qualifier of DW.

Thus to be the referent of 'O' is to be the qualificand of DW. To be the mode of representation of O, the referent of 'O', is to be the limitor of the being the referent. Thus O-ness is the mode of presentation of O. O-ness as the limitor of being qualificand of DW resident in O which is the referent, is called 'the limitor of the property of being the referent (referent-ness)'.

(iv) The mode of presentation of the referent being always a property of the referent must be related to the referent by R, an occurrence-exacting relation. This R which is a part of the meaning of 'O' must be related to DW. This relation is due to the fact the R is the limiting relation of the property of being the qualificand of DW resident in O.

Raghunātha, however, does not accept this usual Navya-Nyāya

theory. According to him, O-ness is (a) the limiting property of being the qualificand of DW resident in 'O', and also (b) is the limiting property of being the qualificand of the cognition caused by 'O' resident in O. But this does not mean that O-ness has to be meant by 'O'. The point that Raghunātha is making here is that only the referent is the meaning of the word, and that, neither the mode of presentation of the referent, nor its relation (R) to the referent need be included in the meaning of the word. The fact that O-ness is the qualifier in the cognitive structure A, and is also the limitor of the property of being the qualificand of DW, does not mean that O-ness has to be a part of the meaning of 'O'.

E. The mode of presentation of the referent which must be a property of the referent is also *the cause for the application of the word to the referent*. According to Navya-Nyāya, if a word refers to any object, there must be a cause for the application of the word to the referent.

15. GADĀDHARA'S THEORY OF ANAPHORA¹⁵

1. The problem :

S₁ - There is a jar over there, bring *it*.¹⁶

S₂ - There is a table over there, bring *it*.

In S₁ and also in S₂ the pronoun 'it' occurs. Grammatically, i.e., syntactically, in S₁ 'it' refers to the noun 'jar', in S₂ to 'table'. The problem which Gadādhara raises here is semantical. What will be the meaning of 'it' in S₁ and in S₂ ?

It appears that 'it' does not have any one meaning, but has many meanings. In S₁ 'it' means the jar cognized under the mode of jar-ness, in S₂ 'it' means the table cognized under the mode of table-ness. As a pronoun like 'it' can occur in various contexts, it has many meanings.

A word has many meanings if and only if it refers to different objects under different modes, i.e., when the word has different properties limiting the referent-ness of the word. The rule is that if the limiting properties of referent-ness of a word be many, then the word has many referent-nesses and so becomes equivocal. If, on the other hand, the referents of a word, like 'jar', are many, yet all referents are cognized under one mode, i.e., if the limiting property of referentness of the word is one, then the word has only one meaning.¹⁷

¹⁵ For a different type of discussion of this topic, see, Ganeri.

¹⁶ 'atra ghato' sti, tam ānaya', Ādarsā (p. 88).

¹⁷ This explanation will be supplemented later on. For explanation of the technical terms, see Chapter Four.

The following diagrams will make this distinction clear.

Diagram 2 of univocation

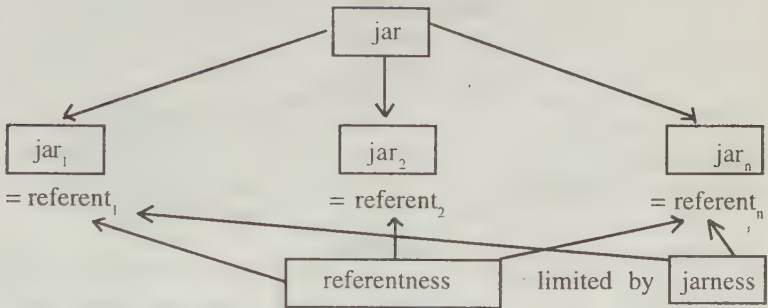
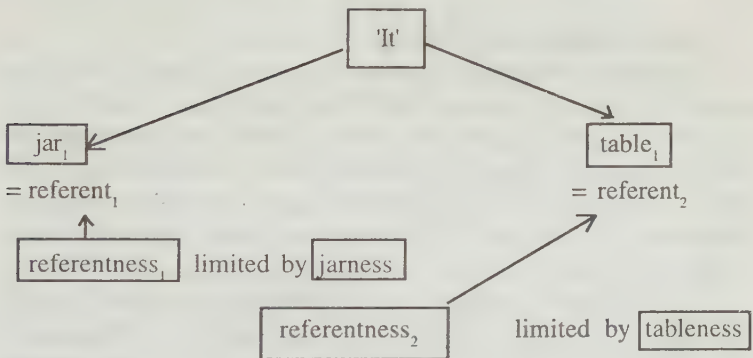


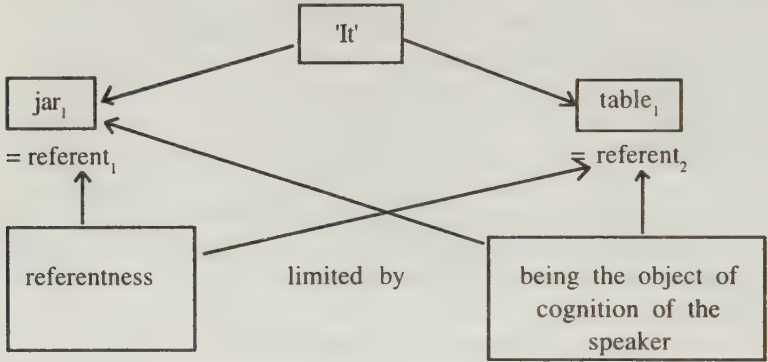
Diagram 3 of equivocation



2. An attempt may be made to show that a pronoun like 'it' has only one meaning despite the fact that it means a jar in S_1 and table in S_2 . For we may say that 'it' means the object which is the object of cognition of the speaker. This is the meaning of 'it' usually given in dictionaries. For example in OED, we get "*The little one* is used anaphorically if it means 'the little flower' or whatever it is that has just been mentioned." In *Webster's Encyclopedic Unabridged Dictionary* we get, "It, pron. 1. (used to represent an inanimate thing understood, primarily mentioned or about to be mentioned.)" So 'it' refers to the object 'understood' or 'that has been just mentioned'. In Navya-Nyāya terminology 'it' refers to an object under the mode 'being an object of cognition of the knower' which becomes the

limitor of referentness of 'it'. So 'it' has one meaning. Therefore, Diagram 3 has to be modified thus :

Diagram 3M



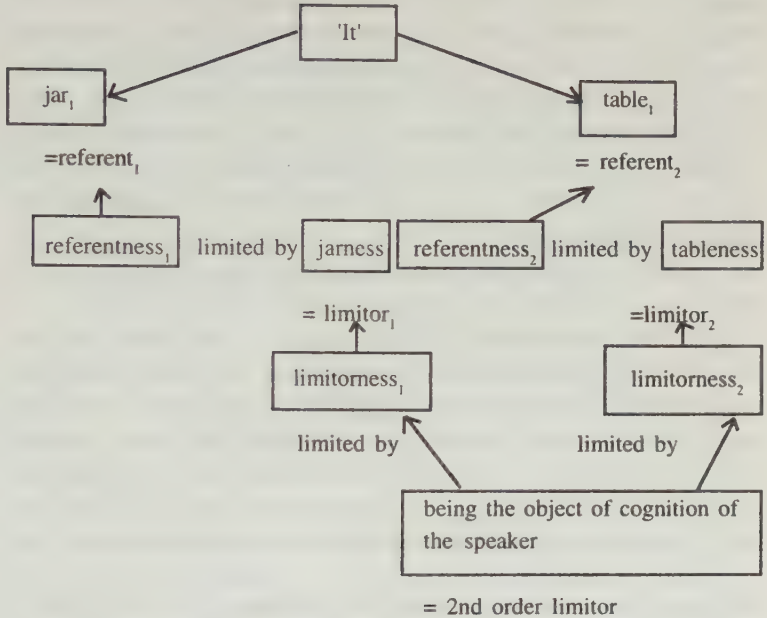
In this interpretation 'it' becomes univocal.

3. Gaḍādhara finds this interpretation faulty, because when the speaker says S_1 , the cognition which the hearer has is that he is to bring the jar cognized under the mode of jarness, and not under the mode of being the object of cognition of the speaker. So being the object of cognition of the speaker cannot be the limitor of referentness of 'it'. It will be jarness in S_1 and table-ness in S_2 . So 'it' is equivocal (Diagram 3).¹⁸

4. In reply to this objection of Gaḍādhara, the opponents modify their theory. They now distinguish between limitors of different orders. The first order limitors of being the referent of 'it' are, indeed, many, jarness in S_1 and table-ness in S_2 and so on. But if we rise to a second order limitor of being the first order limitor of being the referent of 'it', then we have only one property, namely, being the object of cognition of the speaker. This may be explained by the following diagram :

¹⁸ "' Atra ghaṭô' sti tam ānaya ityadi-ṽakya-janya-ghaṭa-ghaṭa-karmakā-
'nayanādibodhā'nantaram... tathā ca vaktṛ-buddhistatvam na
sarvanāma-pada-sākyata-ṽacchedakam api tu ghaṭava-paṭatvā-dikam
eveti tādṛśa-nānā-dharmā- ṽacchinneṣu... nai kaśakti-sambhavaḥ—
ekaika-dharma-mātra-prakāra-ka-tat-tad-artha-bodhānupa-patteriti
sarvanāmnām nānārthatvam durvāram eva" (Śaktivāda, pp. 85-86).

Diagram 4



Now Gadādhara criticizes this theory, too. He points out that 'being the object of cognition of the speaker' which is the second order limiter is a qualifier of the first order limitors. Universals like jar_{ness} when unqualified and not referred to by any word are cognized in and through themselves. But if the universals are qualified then they are always cognized through their qualifers. Now in S₁ the hearer cognizes that he is to bring the jar cognized through the mode of jar_{ness}; but if we accept the theory represented in Diagram 4, then we ought to cognize the jar in S₁ through the universal jar_{ness} which again is qualified by being the object of cognition of the speaker. But a hearer of S₁ cognizes the jar under jar_{ness} not further qualified by any qualifier. Hence this modified theory cannot explain how 'it' is univocal.

The opponents whom Gadādhara mentions here come up with an attempted solution to his objection, by distinguishing between a qualifier (*viśeṣaṇas*) and a pseudo-qualifier (*upalkṣaṇa*). A qualifier has been distinguished from a pseudo-qualifier on various grounds of which only some will be explained.

- (i) A qualifier distinguishes a qualificand to which it belongs from

all other objects. For example, in '(a) blue lotus' blue (colour) is a qualifier of the lotus for the colour distinguishes it from lotuses which are not blue. But in 'a lotus which is an object of true cognition' the grammatically adjectival clause 'which is an object of true cognition' means not a qualifier, but only a pseudo-qualifier. For, according to Nyāya, every object is an object of true cognition (at least of God who is omniscient); hence being an object of true cognition is a global property which cannot distinguish any qualificand from others.

(ii) If I want to identify Devadatta's house, I may proceed in two ways.

(a) I may identify the house by its location, the shape and size, etc., all of which are qualifiers of the house. (b) I may identify the house as the house above which many crows are flying. Now in this case, the crows-flying-above is a pseudo-qualifier of the house, for they do not belong to the house which is, of course, distinguished from other houses. This case is different from (i) in that the pseudo-qualifier here is not a global property and does distinguish the house from other houses.

(iii) A qualifier distinguishes the qualificand from other objects by being present in it. For example, in '(a) person with a red stick in his hand', holding a red stick is a qualifier which distinguishes the person from other persons. But if I know someone to be a mendicant by his matted hair which he has now shaved, then I am distinguishing him from others by a characteristic which is not present. So this is a pseudo-qualifier.

(iv) The most important point of distinction between a qualifier and a pseudo-qualifier, which is relevant here, is that a pseudo-qualifier is not manifested in the verbal cognition of the qualificand. So in the cognition of a word-meaning a pseudo-qualifier is not cognized as it is not a part of the meaning of the word. Now this distinction is used by the opponents to explain how anaphoric expressions are univocal. Thus in Diagram 4, the higher order limiter, being the object of the cognition of the speaker, is a pseudo-qualifier of jar-ness and table-ness; hence this is not cognized in the meaning of 'it' in S_1 and S_2 . The jar under the mode of jar-ness is cognized as the meaning of 'it' in S_1 ; so also the table under the mode of table-ness in S_2 .

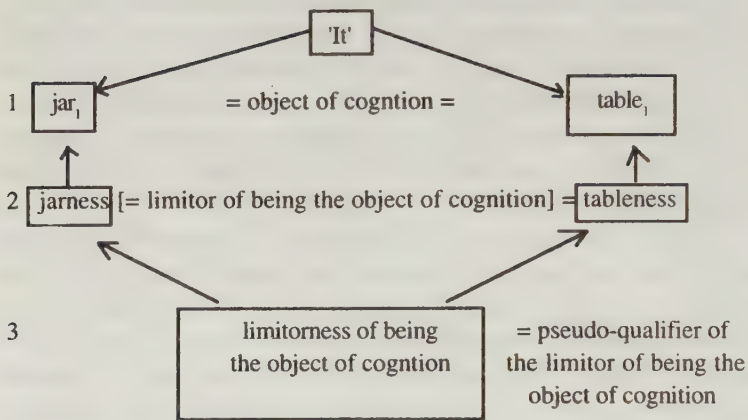
Gadādhara, however, criticizes this theory as giving no reason why the 2nd order limitor should be a pseudo-qualifier. If this is recommended without any justification, then even the 1st order limitors may be regarded as pseudo-qualifiers. Then 'it' in S₁ will refer to the jar without any mode at all; when any one hears it, he will have the cognition of the jar without any qualifier. But this is not possible; for according to Nyāya, no substance can be cognized except through a mode.

Thus the attempts of the opponent to explain how anaphoric expressions can be univocal are not successful. But we cannot also hold that they have many meanings. The theory that 'it' is not univocal, leads to insuperable difficulties. It will not be possible for any one to learn all the meanings of a term like 'it'. For, in S₁ 'it' means the jar, in S₂ 'it' means the table, and there will be innumerable sentences in which 'it' will occur and in which it will mean innumerable objects different from one another. The point is that even though the speaker always cognizes the object referred to by 'it' under a proper mode, the hearer cannot always cognize it, for the hearer may not know that meaning of 'it'. So to explain how any one can learn the meanings of anaphorical expressions, they have to be regarded as univocal. The problem is how to justify this semantically.

Now I explain Gadādhara's solution. This is to explain why the 2nd order limitor is a pseudo-qualifier, 'it' means, first, the limitor of being the object of cognition of the speaker. For example in S₁ the object of cognition of the speaker is the jar. The limitor of being the object of cognition is jariness. So jariness has the property, limitorness of being the object of cognition of the speaker. But this property is a pseudo-qualifier of jariness, and the jar limited by jariness is the referent of 'it'¹⁹ This may be explained by the following diagram :

¹⁹ "Tat-padam-buddhi-*viṣaya*tā-*'vacchedakatvo-palakṣita-dharmā-*
'vacchinna bodhayatu' ityākārakasya vā bhagavat-saṁketasya
svīkārāt tadādi-sarva-nāma-padeṣu buddhi-*viṣaya*tā-*'vacchedakatvo-*
palakṣita-dharmā -*'vacchinna-nirūpitāyāḥ śakter aikyān na nānārthatā,*
*budhi-ṣaya*tā-*'vacchedakatvo-palakṣita-dharmaśca* kvacid
ghatvādikam kvacit paṭatvādikam ityanyad etat, teṣāṁ sarveṣāṁ buddhi-
*viṣaya*tā-*'vacchedaktvo-palakṣita-tvenā* 'nugamaḥ. 'Tatra ghaṭo'sti tam
ānaya' ityatra, budhi-*viṣaya*tā ghaṭe, buddhi-*viṣaya*tā-*'vacchedakam*
ghaṭatvam, buddhi-*viṣaya*tā-*'vacchedatvam ghaṭatve*, buddhi-*viṣaya*tā-
'vacchedatvo-palakṣita-dharmaśca ghaṭatvam, tad-avacchinno ghaṭas
tad-bodhakatvam tat-pade-prāptam" (Ādarsa, p. 85)

Diagram 5



So when one hears S_1 or S_2 , one has the verbal cognition of an object under a mode at 2, but not again under the mode at 3. Now Gadādhara explains the reason why 3 is a pseudo-qualifier, but not 2.

We have to remember here that a limitor of being the referent has 3 characteristics :-

- O-ness is the limitor of being the referent O, if and only if,
- (i) O-ness is a property of O.
- (ii) O-ness is the qualifier of the cognition generated by 'O'.
- (iii) O-ness is meant by 'O'.

Now the 2nd order limitor in Diagram 4 is not meant by 'O' and hence it cannot be the qualifier of the cognition generated by 'O'. For the Divine Will is *not* of the form

DW1 'It produce the cognition of being-the-limitor (limitorness) of being the object of cognition.

In the absence of DW in this form, being the limitor of being the object of cognition of the speaker cannot be a qualifier of the cognition generated by 'it'; hence 3 in Diagram 5 is not manifested in the cognition of it.

The Divine Will which is the semantic relation between 'it' and its meaning is of the following form :

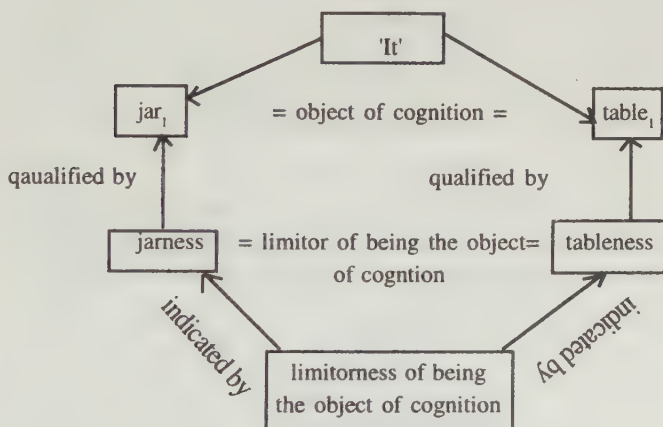
DW2. 'It produce the cognition of what is limited by what is indicated by a pseudo-qualifier which is the limitorness of being the object of cognition.

Note : A pseudo-qualifier indicates whatever of which

it is the pseudo-qualifier. Thus indication is the relation between a pseudo-qualifier and that of which it is the pseudo-qualifier.

Now we explain DW2. 'It' in S_1 refers to the jar which is the object of cognition of the speaker. Jariness is the limiter of being the object of cognition of the speaker. So jariness has the property of being the limiter of being the object of cognition of the speaker. What this property—being the limiter of being the object of cognition—indicates is jariness. So this property is a pseudo-qualifier.

Diagram 6



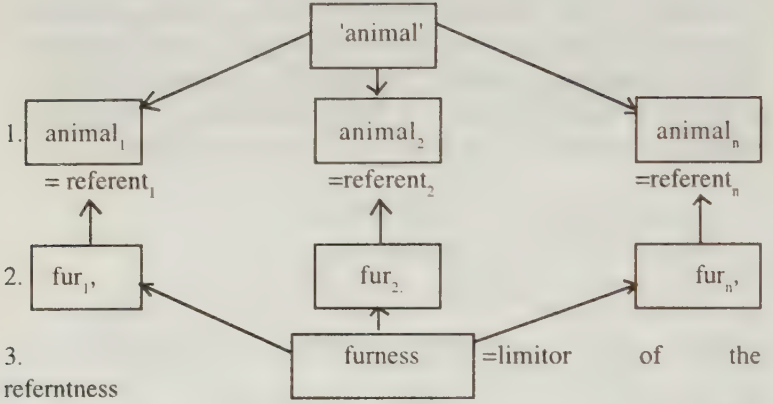
Now let us examine how this theory of Gadadhara can make anaphoric expressions univocal. It will be necessary to supplement the explanation of univocation and equivocation. The full explanation is :

A word is univocal if and only if, (i) there is one limiting property of referentness; or (ii) there is a higher order property which becomes only indirectly a limiter of referentness; (iii) there is one pseudo-qualifier indicating all the limitors of referentness of a word. Otherwise, the word is equivocal. Explanation. (iii) is explained in Diagram 6, which makes 'it' univocal. (i) is explained in Diagram 2. We have to explain only (ii).

The word 'animal' refers to whatever possesses fur, a tail etc. But the fur and the tail differ in different animals. The higher order property furness or tailness is a universal, and hence is one. This furness etc., becomes the limiter of referentness of 'animal' only indi-

rectly via the particular furs etc., of the animals.²⁰ This may be explained by the following diagram :

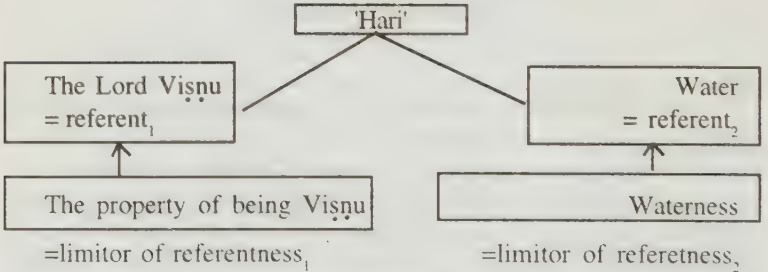
Diagram 7



As this diagram makes it clear furness becomes the limitor of referntness of 'animal' only indirectly via the stage 2. But as this limiting property, though indirect, is one, 'animal' has one meaning.

Diagram 8

Equivocation



As there is no one higher order property, either as a qualifier or as a pseudo-qualifier which can unite the two referentness, 'Hari' is ambiguous.

²⁰ "Paśvādi-sthale ca 'paśū-padād lāṅgula-viśiṣṭo loma-lāṅgula-viśiṣṭo vā boddhavyaḥ" ityākārka-bhagavat-saṁketa-svīkārat-paśu-vyaktau lāṅgulam viśeṣaṇam taccānekam eva, tatra lāṅgulatvam viśeṣaṇam tacca ikam eva, tacca lāṅgulatvam lāṅgula-dvarai va śakya-tāvacchedakam iti paramparayā śakya-tāvacchedakam jātam". (Ādarsā, pp. 88-89)

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1. The first thing I noticed when I stepped out of the plane was the fresh air. It felt like a breath of life after being cooped up for hours.
2. The landscape was breathtaking. Rolling green hills under a clear blue sky, with a few scattered white houses and red-roofed barns.
3. I had heard that the weather was perfect, and it didn't disappoint. The sun was warm but not too hot, just what I needed.
4. The people I met were friendly and welcoming. They seemed to have a genuine interest in their visitors.
5. The food was delicious. I had heard that the local cuisine was amazing, and it was true. The flavors were fresh and hearty.
6. The pace of life was slow and relaxed. It was a stark contrast to the fast-paced city I had just left.
7. The scenery was beautiful. The view from the hilltop was simply stunning. I had never seen anything like it before.
8. The people were kind. They took the time to show me around and answer my questions. It was a pleasant surprise.
9. The food was great. I had heard that the local food was delicious, and it was. The flavors were fresh and hearty.
10. The pace of life was slow. It was a stark contrast to the fast-paced city I had just left.
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Sibajiban Bhattacharyya taught philosophy for fortyfive years in different Universities and Institues in India and abroad. He has published several books, edited Journals and books in philosophy, and has published innumerable articles, discussion notes, reviews in different Journals, Anthologies, Encyclopaedias, Indian and foreign. Professor Bhattacharyya is now a National Fellow of the Indian Council of Philosophical Research, New Delhi.

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